



FIRE ENGINEERING

The Linx Building

Managed by Compton Property Management Ltd

25 Simpson Street, Manchester, M4 4AS

Fire Risk Appraisal External Walls and Attachments

FE02072

Revision J

Date: 26th September 2024

Fire Risk Appraisal External Walls and Attachments

Note: This report should not be manipulated, abridged, or otherwise presented without the written consent of CHPK Fire Engineering Ltd.

Project Name	FE02072 - Compton Property Mgmt Ltd - Linx Building, 10 Naples Street & 25 Simpson Street, Manchester, M4 4AS (EWS)	Client	Compton Property Management Ltd
Project	FE02072	For Attention Of	--
Date	26th September 2024	Revision	J

Issue Record					
Revision	Date	Assisted By	Author	Reviewed By	Description
DRAFT	14.07.2023	JW	JM	MO	Initial Issue for project team comment
A	27.07.2023	JW	JM	MO	Revised to incorporate Clients' comments
B	01.11.2023	JW	JM	MO	Revised to incorporate BSF comments
C	17.01.2024	JW	JM	MO	Updated to include additional Wall Type following further investigations
D	06.03.2024	-	JM		Revise following DLUHC comments
E	13.03.2024	-	JM		Add new information at the soffit of the balcony walkways
F	25.03.2024	PJ/JW	JM		Amendments from recent inspections
G	09.04.2024	JW	JM		New Information found during site visit on 28.03.2024
H	03.07.2024	JW	JM	JL	Reviewed assessments of Wall Types 1, 2, 3, 4, and 6. Clarification to escape routes and Wall Types 5 & 7. Conclusion on remediation recommendations amended to omit Wall Types 5 and 7.
I	30/08/2024	--	AI	JM	The report has been updated to the new CHPK FE template and includes additional intrusive investigations. It is recommended to review the entire report thoroughly.
J	26/09/2024	--	AI	JM	Following CHPK comments, Section 3.2.3 and Appendix D were added to the report and amendments were made to Sections: Executive Summary, 1.3, 3, 3.1, 3.2.1, 3.2.2, 3.2.4, 4.1.1, 4.1.2, 4.1.3, 4.2.1, 4.2.2, 4.2.3, 4.3, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 5.11, 5.12, 6.1, and 6.2

Competence Statement to carry out a Fire Risk Appraisal of External Wall (FRAEW) construction:

The contributors of this FRAEW according to PAS9980:2022 for The Linx Building confirms that they have:

- Read and understood the commentary and provisions relating to the competence of external wall assessors set out in Section 8 and Annex H of PAS9980:2022
- An adequate and relevant competence to undertake the FRAEW
- Sufficient knowledge, skills, and experience in relation to fire safety of external walls to be able to complete an assessment at the level required
- The relevant skill, knowledge, and experience to manage and interpret the results of intrusive inspections
- The competence to appraise and assess the nature of external wall construction in terms of fire performance and provide an opinion on the risk
- Knowledge to undertake the FRAEW as required by the PAS9980:2022
- Relevant professional experience in conducting similar investigations
- A fully qualified membership of a relevant professional body as stated below

The author also confirms that their company - CHPK Fire Engineering Ltd, carries an appropriate level of Professional Indemnity Insurance (PII) to undertake this FRAEW, see Appendix A - Professional Indemnity Insurance Certificate for latest version.

Biography of the Author

Adeel Idrees, Senior Fire Engineer at CHPK Fire Engineering Ltd:

Adeel Idrees holds an IFE Level 3 Certificate in Passive Fire Protection. This certification has facilitated the development of his foundational knowledge in fire science and human behaviour that influences passive fire protection requirements. Adeel has a specialised technical understanding of passive fire protection measures, demonstrating a comprehensive grasp of the factors affecting their effectiveness. Additionally, he has a solid understanding of active fire protection systems and their interaction with passive measures. With this knowledge, Adeel has provided Stage 5 construction support for new buildings, gaining valuable insights into materials, components, external wall construction, cladding, and construction techniques. His proficiency extends to developing fire strategies for residential buildings in the UK, demonstrating in-depth knowledge of relevant regulations and standards that govern the construction of buildings.

Biography of the Reviewer

Dr Jianqiang Mai, Technical Director at CHPK Fire Engineering Ltd:

Dr Mai is the technical director of CHPK Fire Engineering. He is a chartered engineer and a member of IFE. He provides technical leadership to the CHPK Fire Engineering team. He has over 20 years of experience in fire engineering and related services. He is specialised in fire safety strategy development and has provided service to projects in the UK, Middle East, and Hong Kong from RIBA Stages 2 to 6 and EWS assessments. He has rich experience in most building types and can provide unique fire engineering solutions to fulfil the clients design aspirations and, at the same time, comply with the building regulations. Dr Mai gained rich experience, a wide range of knowledge in fire safety related areas, and multiple skills from being a senior lecturer at the University of Central Lancashire and fire engineers in several consultancy companies. Dr Mai has been involved in external wall assessments in recent years before PAS 9980 was published. Following the publication of PAS 9980, he has been trained to perform PAS 9980 assessment by attending CPD events, self-study, communication with PAS 9980 authors, and engineering practice. He has performed many PAS 9980 fire risk appraisals, signed EWS1 forms for many buildings and companies with high client satisfaction.

Author	Reviewed by
 Adeel Idrees MEng (Hons) AIFireE Senior Fire Engineer CHPK Fire Engineering Ltd 26th September 2024	 Dr Jianqiang Mai PhD MEng BEng CEng MIFireE Technical Director CHPK Fire Engineering Ltd 26th September 2024

Content

Competence Statement to carry out a Fire Risk Appraisal of External Wall (FRAEW) construction:	3
Biography of the Author	3
Biography of the Reviewer	3
Abbreviations and Defined Terms	7
Material Classification Rating & Colour Coding adopted in this report	8
Executive Summary	9
1. Introduction	11
1.1 Purpose of the Report	11
1.2 Legislative Context	11
1.3 General Building Description	12
1.4 Project Documents	13
2. FRAEW Methodology - PAS 9980	14
2.1 Step 2: Information Gathering	14
2.1.1 ENG-1111358-CS by Vemco Consulting	14
2.1.2 LS/087 by Façade Remedial Consulting	19
2.1.3 FRA Final V1 The Linx May 2020 by Flame Risk Safety Solutions Ltd	20
2.1.4 MC283 by Flame Risk Safety Solutions Ltd	20
2.1.5 CHPK FE's Site Visit(s)	21
2.1.6 Fire Strategy	21
2.1.7 Current Interim Measures	21
2.1.8 Management Policies Strategy	21
2.1.9 Evacuation Strategy	21
2.1.10 Fire Alarm and Detection System	21
2.1.11 Means of Escape	21
2.1.12 Internal Fire Spread (Linings)	22
2.1.13 Internal Fire Spread (Structure)	22
2.1.14 Compartmentation	22
2.1.15 Sprinklers	22
2.1.16 Cavity Barriers and Fire Stopping	22
2.1.17 Access and Facilities for Fire Service	23
2.1.18 Fire Strategy Drawings	23
3. Step 3: Risk Factor Information	24
3.1 External Wall & Attachment Elevations	24
3.2 Wall Types and Attachments	28
3.2.1 External Wall 1: Vertical Cedar Wood Cladding	28
3.2.2 Wall Type 2A - Masonry with Aluminium Frame Inner Leaf	30
3.2.3 Wall Type 2B - Solid Blockwork	32
3.2.4 Wall Type 3 - Horizontal Cedar Wood Cladding	34
3.2.5 Wall Type 4 - Trespa Meteon	36
3.2.6 Wall Type 5 - Curtain Walling	38
3.2.7 Wall Type 6 - Insulated Render	40
3.2.8 Attachment Type 1 - Cantilever balcony	42
3.2.9 Attachment Type 2: Terrace Balcony	42
3.2.10 Attachment Type 3: Inset Balcony	43

3.2.11	Attachment Type 4: Balcony Approach.....	43
3.2.12	Attachment Type 5: Juliet Balcony.....	44
3.2.13	Window Type 1: Aluminium Window.....	45
3.2.14	External Door Type 1: Timber Door.....	45
3.2.15	External Door Type 2: Wood Effect PVC Door.....	46
4	Step 4: Risk Factor Appraisal.....	47
	Fire Performance.....	47
	Façade configuration.....	47
	Fire Strategy/Fire Hazards.....	47
4.1	Fire Performance.....	48
4.1.1	Fire Performance: External Wall 1.....	48
4.1.2	Fire Performance: External Wall 2A.....	50
4.1.3	Fire Performance: External Wall 3.....	52
4.1.4	Fire Performance: External Wall 4.....	54
4.1.5	Fire Performance: External Wall 5.....	56
4.1.6	Fire Performance: External Wall 6.....	58
4.2	Façade Configuration.....	60
4.2.1	Fire Configuration: External Wall 1.....	60
4.2.2	Fire Configuration: External Wall 2A.....	62
4.2.3	Fire Configuration: External Wall 3.....	64
4.2.4	Fire Configuration: External Wall 4.....	66
4.2.5	Fire Configuration: External Wall 5.....	68
4.2.6	Fire Configuration: External Wall 6.....	70
4.3	Fire Strategy and Hazard Risk Factors.....	72
4.4	Fire Service Intervention.....	74
4.5	Key Site Observations.....	74
5.	Conclusions and Recommendations.....	75
5.1	Step 5: Evaluation against Benchmark Criteria.....	75
5.2	Conclusions and Recommendations External Wall 1: Vertical Cedar Wood Cladding.....	76
5.3	Conclusions and Recommendations External Wall 2A: Masonry with Aluminium frame inner leaf.....	77
5.4	Conclusions and Recommendations External Wall 3: Horizontal Cedar Wood Cladding.....	78
5.5	Conclusions and Recommendations External Wall 4: Trespa Meteon.....	79
5.6	Conclusions and Recommendations External Wall 5: Curtain Walling.....	80
5.7	Conclusions and Recommendations External Wall 6: Render.....	81
5.8	Conclusions and Recommendations Attachment Type 1: Cantilever balcony.....	82
5.9	Conclusions and Recommendations Attachment Type 2: Terrace Balconies.....	83
5.10	Conclusions and Recommendations Attachment Type 3: Inset balcony.....	84
5.11	Conclusions and Recommendations Attachment Type 4: Balcony Approach.....	85
5.12	Conclusions and Recommendations Attachment Type 5: Juliet balcony.....	86
6.	Conclusion.....	87
6.1	Proposed Remedial Actions.....	87
6.2	Interim Measures.....	87
7.	Limitations.....	88
	References.....	88
	Appendix A – Professional Indemnity Insurance Certificate.....	89

Appendix B -Post Site Inspection Report August 2024.....	90
Appendix C -Post Site Inspection Report December 2023	144
Appendix D -Wall type 2B visual survey	155

Abbreviations and Defined Terms

Abbreviation/ Defined Term	Definition
ACM	Aluminium Composite Material
ADB	Approved Document B
AOV	Automatic Opening Vent
BSA	Building Safety Act
Cavity Barrier	Product used to close or separate a concealed space to restrict fire and smoke spread
Close State Cavity Barrier	Cavity Barrier designed to be fitted under compression/friction between inner and outer surfaces of a cavity to seal it
Open State Cavity Barrier	Cavity Barrier that is open to allow ventilation/drainage of cavity in open state but closes when a developing fire occurs, e.g., intumescent strip
Combustible	Not classified as A1 OR A2 in accordance with BS EN 13501-1: 2018, and not meeting definitions of non-combustible or limited combustibility
Compartmentation	Subdivision of building by fire resisting walls and/or floors for limiting fire spread
EPS	Expanded Polystyrene
EWS1	External Wall System Fire Valuation Form
FB	Fire Barrier - Separating element with fire integrity for a specific time
Fire Stop	Barrier seal to close an imperfect fit in design between elements of components to stop the spread of fire
FRAEW	Fire Risk Appraisal of External Walls
FRA	Fire Risk Assessment
FRS	Fire and Rescue Services
FSA	Fire Safety Act
HPL	High Pressure Laminate
HRR	Heat Release Rate
MCM	Aluminium Composite Material
MDF	Medium Density Fibre Board - a type of manufactured timber
PIR	Polyisocyanurate Rigid Foam
PUR	Polyurethane Foam
RP	Responsible Person
RRFSO	Regulatory Reform (Fire Safety) Order
SFS	Steel Framing System

Material Classification Rating & Colour Coding adopted in this report

Material Euroclass	Colour Code
Euroclass A1	
Euroclass A2_s1, d0	
Euroclass B-C	
Euroclass D-F	

Executive Summary

CHPK Fire Engineering (CHPK FE) has been commissioned by Compton Property Management Ltd to carry out a Fire Risk Appraisal of the External Wall (FRAEW) and attachments for the Linx Building. CHPK FE reviewed the documents available, attended an intrusive site investigation, gathered information, and carried out a PAS 9980 assessment.

In line with PAS9980 guidance, this FRAEW seeks to assess the potential risk to human life posed by a fire and smoke spreading over and within the buildings' external walls, and to determine as to whether, in the specific circumstances of the building, remediation or other mitigation measures to address the risk are deemed necessary.

Notably, this assessment does not encompass an evaluation of the external wall construction's compliance with Building Regulations or statutory guidance, nor does it consider the safeguarding of the building's structure or the personal effects of its occupants.

This FRAEW is based on a relative risk assessment and consequently does not purport to ascertain the safety of the wall system, it relies upon the professional discretion and the application of the current PAS Standard by the assessor.

The FRAEW is designed to support the buildings' Fire Risk Assessment (FRA) and should be subject to reassessment and amendment considering the findings delineated in this report.

Based upon the review and analysis of information gathered from documentation made available to CHPK FE and subsequent site intrusive inspections witnessed by CHPK, the following is a summary of the identified wall types along with the conclusions on their risk rating and corresponding recommended remedial measures; six (06) wall types and four (04) attachments have been identified in the external walls.

External Wall 1: Vertical Cedar Wood Cladding- Negative Effect, High Risk

Recommended Remediation: Remove and replace all combustible materials in the wall type with materials that achieve Euroclass A2-s1, d0 or better. This also includes the sheathing board. All combustible membranes must also be removed and replaced with membranes achieving a minimum of class B-s3, d0. Install cavity barriers at the relevant locations in conjunction with the current Building Regulations in Approved Document B. This is required in all locations where this wall type is present.

External Wall 2A: Masonry with Aluminium frame inner leaf- Negative Effect, High Risk

Recommended Remediation: Remove and replace all combustible materials in the wall type with materials that achieve Euroclass A2-s1, d0 or better. All combustible membranes must also be removed and replaced with membranes achieving a minimum of class B-s3, d0. Install cavity barriers at the relevant locations in conjunction with the current Building Regulations in Approved Document B. This is required in all locations where this wall type is present.

External Wall 2B: Solid blockwork- Neutral Effect, Low Risk

Recommended Remediation: Remediation is not required

External Wall 3: Horizontal Cedar Wood Cladding- Negative Effect, High Risk

Recommended Remediation: Remove and replace all combustible materials in the wall type with materials that achieve Euroclass A2-s1, d0 or better. This also includes the sheathing board. All combustible membranes must also be removed and replaced with membranes achieving a minimum of class B-s3, d0. Install cavity barriers at the relevant locations in conjunction with the current Building Regulations in Approved Document B. This is required in all locations where this wall type is present.

External Wall 4: Trespa Meteon- Negative Effect, High Risk

Recommended Remediation: Where this wall type is used as a decorative soffit, remove and replace all combustible materials in the wall type with materials that achieve Euroclass A2-s1, d0 or better. All combustible membranes must also be removed and replaced with membranes achieving a minimum of class B-s3, d0. Install cavity barriers at the relevant locations in conjunction with the current Building Regulations in Approved Document B.

External Wall 5: Curtain Walling- Negative Effect, High Risk

Recommended Remediation: Remove and replace the combustible spandrel panels in the wall type with materials that achieve Euroclass A2-s1, d0 or better. Install fire stops at the relevant locations in conjunction with the current Building Regulations in Approved Document B. This is required in all locations where this wall type is present.

External Wall 6: Render- Neutral Effect, Low Risk

Recommended Remediation: Remediation is not required

Attachment Type 1: Cantilever Balconies - Negative Effect, High Risk

Recommended Remediation: The timber decking on all balconies is removed and replace with material that achieves Euro class A2s1-fl0 or better. – The impact this will have on life safety is that there is a lower risk of vertical fire spread to effect secondary apartments and compromise the stay-put policy.

Attachment Type 2: Terrace Balconies - Negative Effect, High Risk

As part of remediation work to Wall Types 1 and 3, the timber cladding and all other combustibles within the wall types shall be removed and replaced, this is sufficient to offset the risk associated with Attachment Type 2.

Attachment Type 3: Inset Balconies - Negative Effect, High Risk

Recommended Remediation: The timber decking on all balconies is removed and replace with material that achieves Euro class A2s1-fl0 or better. – The impact this will have on life safety is that there is a lower risk of vertical fire spread to effect secondary apartments and compromise the stay-put policy.

Attachment Type 4: Balcony Approach - Negative Effect, High Risk

Recommended Remediation: Replace the timber soffit with a non-combustible material rated Euroclass A2-s1, d0 or better. The framework can remain unchanged, as the replacement of Wall Type 1 and 3 will reduce the potential for ignition.

Attachment Type 5: Juliet Balcony - Neutral Effect, Low Risk

Recommended Remediation: Remediation is not required

The following interim measures are also recommended:

- Temporary simultaneous evacuation following the National Fire Chiefs Council's Simultaneous Evacuation Guidance is required. It has been noted that this was previously recommended in an external wall assessment issued in 2021 but was not implemented. Please be aware that failing to implement this interim measure could result in preventable fatalities.

The overall fire risk rating of the external wall is assessed as High.



1. Introduction

CHPK Fire Engineering (CHPK FE) has been commissioned by Compton Property Management Ltd to carry out a Fire Risk Appraisal of the External Wall (FRAEW) and attachments for The Linx Building, 25 Simpson Street, Manchester, M4 4AS. CHPK FE reviewed the documents available and attended intrusive site investigations, gathered information, and carried out a PAS 9980:2022, (Fire risk appraisal of external wall construction and cladding of existing blocks of flats – Code of Practice) ("PAS Standard") assessment (PAS 9980:2022).

The observations discussed in this FRAEW aim to assess the facades on The Linx Building with regard to the fire safety risk. It is important to note that the purpose of this report is not to validate the original design of the facade, instead, the fire risk assessment for the external wall is carried out in line with the current regulation, guidance, and good practice within the industry. Any performance issues – thermal, acoustical, weather tightness, etc. – for the façade, that are not fire related, are not discussed in this FRAEW.

In line with the recent guidance in PAS9980:2022, the FRAEW is extended to provide the client with recommended alternative options for the remedial works required to mitigate or reduce the risk of fire and smoke spread within the external wall.

3.1 Purpose of the Report

In line with PAS9980 guidance, this FRAEW seeks to assess the potential risk to human life posed by a fire and smoke spreading over and within the building's external walls, and to determine as to whether, in the specific circumstances of the building, remediation or other mitigation measures to address the risk are deemed necessary.

Notably, this assessment does not encompass an evaluation of the external wall construction's compliance with Building Regulations or statutory guidance, nor does it consider the safeguarding of the building's structure or the personal effects of its occupants.

This FRAEW is based on relative risk assessments and consequently does not purport to ascertain the safety of the wall system, it relies upon the professional discretion and the application of the PAS Standard by the assessor.

The FRAEW is designed to support the building's Fire Risk Assessment (FRA) and should be subject to reassessment and amendment considering the findings delineated in this report.

3.2 Legislative Context

The FRAEW is guided by a risk-based approach that aligns with the provisions of the Regulatory Reform (Fire Safety) Order 2005 (FSO), as amended by the Fire Safety Act 2021. However, the non-compliance at the time of design of a building, with the current Approved Document B, or any other design guide, will not be the sole factor in determining the outcome of the FRAEW.

The methodology presented in PAS 9980 is designed to minimise unnecessary measures for buildings where empirical data indicates that the fire hazards associated with the external wall are of low or tolerable magnitude.

This FRAEW constitutes a methodical and structured process for identifying hazards with the purpose of informing the building's Fire Risk Assessment (FRA). The FRA should be subject to reassessment and amendment considering the findings delineated in this report.

This FRAEW furnishes information essential for informing the decision-making process within the framework of the FRA. Collaborating with the building's fire risk assessor and other qualified advisors, the Responsible Person will, when deemed necessary, sanction the most suitable measures for mitigating the hazards arising from the external walls.

In line with the requirements of the Fire Safety Order, the FRA shall form the requirements to undertake a judgement and determine if a building is safe. While commissioning a FRAEW often follows a building's FRA, the findings from the FRAEW may necessitate a review and revision of the initial FRA; this is an iterative process. During the FRA review process, the Responsible Person may seek additional technical support from stakeholders or the expertise of Competent Persons.

The FRA may either determine that no remedial action is required, or a remediation is required depending on the tolerability of risks presented by the external wall. A plan of action to reduce the current risk to a tolerable level needs to be devised by the stakeholders and occasionally the remedial action might include works to other building elements not related to the external wall.

It is ideal to conduct all necessary assessments and investigations in one iteration although there may be conditions where evaluation of the pre-defined points in the FRA may take priority to assess if the works have reduced the current risk to a tolerable level.

3.3 General Building Description

The Linx is a residential development located in Manchester city centre, consisting of a single block. The building has seven storeys (G + 6) and stands approximately 20.8 meters tall, measured from the ground floor at the lowest elevation to the finished floor level of the highest occupied floor. Additionally, the property includes a basement level with car parking and a central courtyard at ground floor level. The building is served by two internal stair cores, located on the southeast and northwest sides, with all flats accessed via a balcony approach.



Figure 1 The Linx Building

The following Table provides the relevant building information.

Table 1 General Building Description

Premises Description	
Location	The Linx Building, 25 Simpson Street, Manchester, M4 4AS
Date of Inspection	18/12/2023, 12/08/2024, 15/08/2024 and 16/08/2024
Number of External Wall Systems	7
No. Attachment Types	5
Height to uppermost occupied storey*	20.8m
Total Building Height	23.8m
Number of Storeys	7 (G+6)
Occupancy Type	Residential
Age of Construction	Circa 2005
Edition of Approved Document B at the time of construction	Approved Document B - Fire Safety (2000 Edition - incorporating the 2002 European amendments)
Is the block a part of a wide development	N/A

*The height of the uppermost occupied storey of the building has been measured in accordance with Diagram D6 of Approved Document B (2022).

It is important to note that the building is considered as a High-Risk Building (HRB) as it is over 18 metres.

3.4 Project Documents

The FRAEW refers to documents produced by third parties and due to the significant amount of information in those documents, it is not practical or desirable to reproduce it in this report. Therefore, the reader is encouraged to obtain a copy of those documents with a complete list of documents and plans is given in this report, see Table 2 - Relevant documents issued to CHPK FE. Please note, a fire strategy was not provided.

Table 2 Relevant documents issued to CHPK FE

Document Reference	Description	Date	Rev.	Originator
ENG-1111358-CS-Linx Manchester	External wall assessment	January 2021	V3.0	Vemco Consulting
LS/087/01032019	External façade report	March 2019	--	Façade Remedial Consultants
FRA Final V1 The Linx May 2020	Fire risk assessment	May 2020	V1	Flame Risk Safety Solutions Ltd
MC283 The Linx Final issued Oct 2020	Additional Report on Assessment of External Wall Cladding following Liaison and Consultations with Greater Manchester Fire and Rescue Service	October 2020	--	Flame Risk Safety Solutions Ltd

2. FRAEW Methodology - PAS 9980

This FRAEW is prepared based on the 5-step structured approach provided in Section 13 of PAS 9980:2022 to methodically determine an outcome with respect to the fire risk posed by the external wall construction.

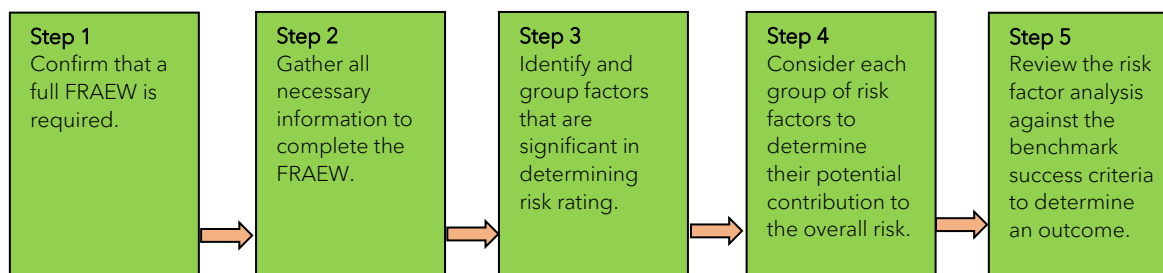


Figure 2: The 5-step process of a FRAEW (extract from PAS 9980)

The first step of this study is determining whether a full FRAEW in accordance with PAS is required and this is to avoid unnecessary effort and cost in proceeding further with the FRAEW. Figure 2 : Process for determining whether a full FRAEW is required (extract from PAS 9980) shows this exercise. The route highlighted in red shows the process taken in this report.

From the previous intrusive site visits, it was found that there was sufficient concern that cavity barriers have not been installed where required, or quality of workmanship is not adequate. Therefore, a FRAEW is required.

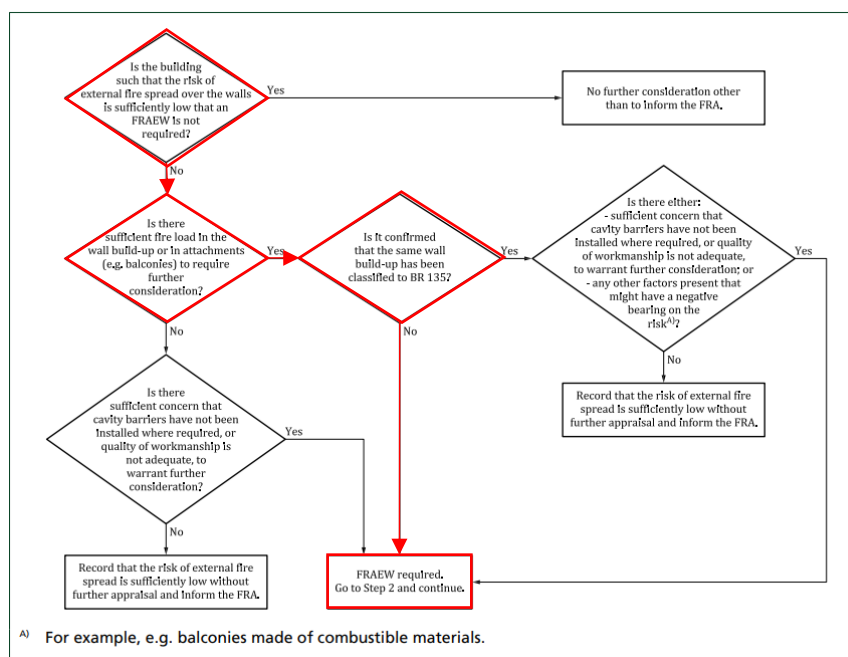


Figure 2 : Process for determining whether a full FRAEW is required (extract from PAS 9980)

2.1 Step 2: Information Gathering

This section aims to discuss the information gathered from the review of available documents, and site intrusive inspections that are related to the external walls of the building to inform the risk factors when assessing identified wall types of the building.

2.1.1 ENG-1111358-CS by Vemco Consulting

The report issued by Vemco Consulting is an external wall assessment conducted in accordance with the guidelines that were in place prior to the release of PAS 9980:2022. At the time the report was prepared, it adhered to the relevant guidance that was applicable. This report provides a comprehensive summary of the inspection methodology used during the assessment, details the specific type of external wall systems that were evaluated, and offers recommendations for any necessary remediation. It should be noted that only Wall Types; 1,2,3,4 and 5 were inspected. It is recommended to read the entire report; the report relies on certain findings from their intrusive investigations, these are summarised below:

Wall Type 1- Vertical Cedar Wood Cladding*Table 3 Report ENG-1111358-CS Wall Type 1 Build up*

Material name	Combustibility	Reference
20mm Cedar wood cladding	Class D	European reaction to fire classifications of wood products [Internet]. Ostman, Birgit; 2005 [cited 30 September 2020]. Available from: http://www.gate-project.org/uploads/birgit_ostman_puittoodete_euroklassid.pdf
65 to 75mm air gap	N/A	N/A
54 x 45 wooden batts cross braced on 20 x 45mm vertical wooden batts at 325 centres.	Class D	European reaction to fire classifications of wood products [Internet]. Ostman, Birgit; 2005 [cited 30 September 2020]. Available from: http://www.gate-project.org/uploads/birgit_ostman_puittoodete_euroklassid.pdf
Cement particle board (not inspected past CP board)	B-s1, d0	e.g. Cempanel [Internet]. Cembrit; 2018 [cited 28 November 2020]. Available from: https://www.cembrit.co.uk/download/binary/27848

- **Cavity barriers at compartment lines:** unsatisfactory - some horizontal barriers in place but workmanship poor and not mechanically fixed
- **Cavity barriers around openings:** not satisfactory

Wall Type 2- Masonry with Aluminium Frame Inner Leaf*Table 4 Report ENG-1111358-CS Wall Type 2A Build up*

Material name	Combustibility	Reference
100mm architectural masonry with mortar joints	Class A1	N/A
40mm air gap	N/A	N/A
15mm Bitroc sheathing board	Class E	See the withdrawn BBA certificate: HUNTON BITROC SHEATHING BOARD Agrément Certificate 10/4791 Product Sheet 1 [Internet]. BBA; 2010. Available from: https://www.ecomerchant.co.uk/productattachments/index/download?id=26 Product consists of wood fibres impregnated with bitumen. "When assessed in accordance with BS 476-7 : 1997, the board can achieve a Class 4 surface spread of flame rating [former National Class]. The board is combustible." Class 4 is given to a product "exceeding the limits for [i.e. worse than] Class 3. Class 3 is transposed as D-s3, d2. Therefore Class 4 equates to Class E Euroclass.
100mm aluminium frame filled with unknown insulation	Assumed Class A1	Ad-hoc flame test conducted - did not ignite. Consistent in appearance with mineral wool (Class A1 product)
2x12.5mm plasterboard with thin skim finish	A2-s1, d0	e.g. Declaration of Performance Wallboard [Internet]. Knauf; 2013 [cited 26 May 2020]. Available from: https://mdbapi.knauf.com/v1/pdf_download.php?p=g&action=download&a=918362&c=fc34ee532f30a6df22958b0a78420cf2

- **Cavity barriers at compartment lines:** none observed
- **Cavity barriers around openings:** none observed

Access was not provided to inspect Wall Type 2B.

Wall Type 3 Horizontal Cedar Wood Cladding

Table 5 Report ENG-1111358-CS Wall Type 3 Build up

Material name	Combustibility	Reference
20mm Cedar wood cladding	Class D	European reaction to fire classifications of wood products [Internet]. Ostman, Birgit; 2005 [cited 30 September 2020]. Available from: http://www.gate-project.org/uploads/birgit_ostman_puittoodete_euroklassid.pdf
65 to 75mm air gap	N/A	N/A
54 x 45 wooden batts cross braced on 20 x 45mm vertical wooden batts at 325 centres.	Class D	European reaction to fire classifications of wood products [Internet]. Ostman, Birgit; 2005 [cited 30 September 2020]. Available from: http://www.gate-project.org/uploads/birgit_ostman_puittoodete_euroklassid.pdf
Cement particle board (not inspected past CP board)	B-s1, d0	e.g. Cempanel [Internet]. Cembrit; 2018 [cited 28 November 2020]. Available from: https://www.cembrit.co.uk/download/binary/27848
20mm Xtratherm combustible phenolic insulation	Class F	e.g. Xtratherm Thin-R Insulation Agrément Certificate 08/4613 Product Sheet 3 [Internet]. BBA; 2017 [cited 08 January 2021]. Available from: https://www.xtratherm.com/app/uploads/2018/04/BBA_084613_Thin-R_XT_CW-XT_CWP-31.01.2018.pdf <i>"The products are not classified as non combustible or of limited combustibility, and the Certificate holder has not declared a reaction to fire classification in accordance with BS EN 13501-1 : 2007" (ibid.)</i>
100mm aluminium frame filled with unknown insulation	Assumed Class A1	Ad-hoc flame test conducted - did not ignite. Consistent in appearance with mineral wool (Class A1 product)
2x12.5mm plasterboard with thin skim finish	A2-s1, d0	e.g. Declaration of Performance Wallboard [Internet]. Knauf; 2013 [cited 26 May 2020]. Available from: https://mdbapi.knauf.com/v1/pdf_download.php?p=g&action=download&a=918362&c=fc34ee532f30a6df22958b0a78420cf2

- **Cavity barriers at compartment lines:** some horizontal barriers in place but workmanship poor and not mechanically fixed
- **Cavity barriers around openings:** Timber around the windows < 38mm

Wall Type 4 Trespa Meteon Cladding

This wall type was not intrusively inspected

Table 6 Report ENG-1111358-CS Wall Type 4 Build up

Material name	Combustibility	Reference
8mm Trespa Meteon HPL panel	B-s1, d0 - Class D (worst case assumed - Class D)	Agrément Certificate 99/3629 Product Sheet 1 [Internet]. BBA; 2012 [cited 12 June 2020]. Available from: https://www.bbacerts.co.uk/search/?doc=%2F1YvZ88%2FKtsXrKX4FeBFXOU%2BpC4lCjbOPiM%3D
Omega and Zed aluminium profiles fixing system	At least A2-s1, d0	e.g. Nvelope Rainscreen Systems [Internet]. BBA; 2019 [cited 08 January 2021]. Available from: https://www.bbacerts.co.uk/search/?doc=%2F1AvZ8k%2FL9M3jKX4Fa8EC7M%3D
Cement particle board (not inspected past CP board)	B-s1, d0	e.g. Cempanel [Internet]. Cembrit; 2018 [cited 28 November 2020]. Available from: https://www.cembrit.co.uk/download/binary/27848

20mm Xtratherm combustible phenolic insulation	Class F	e.g. Xtratherm Thin-R Insulation Agrément Certificate 08/4613 Product Sheet 3 [Internet]. BBA; 2017 [cited 08 January 2021]. Available from: https://www.xtratherm.com/app/uploads/2018/04/BBA_084613_Thin-R_XT_CW-XT_CWP-31.01.2018.pdf <i>"The products are not classified as non-combustible or of limited combustibility, and the Certificate holder has not declared a reaction to fire classification in accordance with BS EN 13501-1 : 2007" (ibid.)</i>
100mm aluminium frame filled with unknown insulation	Assumed Class A1	Ad-hoc flame test conducted - did not ignite. Consistent in appearance with mineral wool (Class A1 product)
2x12.5mm plasterboard with thin skim finish	A2-s1, d0	e.g. Declaration of Performance Wallboard [Internet]. Knauf; 2013 [cited 26 May 2020]. Available from: https://mdbapi.knauf.com/v1/pdf_download.php?p=g&action=download&a=918362&c=fc34ee532f30a6df22958b0a78420cf2

- **Cavity barriers at compartment lines:** Not observed.
- **Cavity barriers around openings:** Not observed.

Wall Type 5 Curtain Walling

This wall type was not intrusively inspected.

Table 7 Report ENG-1111358-CS Wall Type 5 Build up

Material name	Combustibility	Reference
Glass	Combustible	N/A
Aluminium spandrel	At least A2-s1, d0	N/A
Insulation	Class E assumed.	Drawings suggest mineral wool but able to confirm. Class E assumed.
100 x 100 x 6 rolled steel angle (abutting floor slab)	Class A1	N/A

- **Cavity barriers at compartment lines:** N /A (spandrel should form barrier)
- **Cavity barriers around openings:** N /A (spandrel should form barrier)

Recommendations:

10.1.1 The recommendations to external walls are as follows:

10.1.1.1 Wall Types 1 and 3 (timber cladding):

- Remove all combustible material and replace with A2-rated material (or better).
- Install adequate, mechanically-fixed cavity barriers at horizontal and vertical compartment lines
- Install adequate, mechanically-fixed cavity barriers (see para 5.3.1) around windows and doors
- Adequately fire-stop service penetrations through wall, closing any gaps
- Carry CP board up to full-storey height where this stops short

10.1.1.2 Wall Type 2A and 2B (masonry or brickwork outer): the following action is recommended:

- Type 4 FRA to inspect cavity barriers at these wall types
- If they are present at compartment lines and around windows, in our professional opinion this wall type will pose an acceptably low risk since the only combustible material is the 15mm sheathing.

10.1.1.3 Wall Type 4A and 4B (Trespa and weatherboard cladding): the following action is recommended:

- Type 4 FRA to inspect build-up and cavity barriers at these wall types.
- Client to confirm weatherboard cladding product and exact location of Trespa across building.

Wall Type 5 (curtain walling): the following action is recommended:

- Type 4 FRA to establish insulation type.

- *If mineral wool, no remedial work required.*

10.1.2 In identifying compliant options for the treatment of balconies, we are mindful that the MHCLG Consolidated Guidance (January 2020) refers practitioners to BRE research on balcony fires to assist with the assessment of risk arising from balconies. Based on evidence from the incidents referenced in this BRE research paper that the balcony fires did not present a risk to life safety, in developing recommendations for balcony remediation, we are mindful of this research finding. We are also mindful that requirements under Building Regulations and The Fire Safety Order are concerned with the protection of life (not asset protection) to the extent of what is considered reasonable. The recommendations to balconies are as follows:

10.1.2.1 Our recommendation is to replace all timber decking / joists with material meeting Class A2 or better in accordance with Clause 3.13 of MHCLG guidance.

10.1.2.2 However, it should also be acceptable and meet the functional requirement of regulations to replace decking and joists to alternate balconies with Class A2 material since flame lengths are not long enough to exceed one storey.

10.1.2.3 Soffits to open corridor balconies should be removed or replaced with material achieving A2 or better.

10.1.3 Terraces do not require remedial work since there is limited risk of fire spread to them due to being set back from the main elevation. External surfaces at terraces should be dealt with as per external wall recommendations above at 10.1.1.

10.1.4 Due to window configuration (see paragraph 9.0.5.6 of this report), and the risk associated with the height of the building (see paragraph 9.0.3 of this report), flats located on storeys more than 11m above ground level in The Linx should be provided with smoke detection near the windows in a stack where the gap is less than 1m (see para. 9.0.5.6). For instance, at 8no. of the 16no. vertical window stacks on the Angel St elevation. This should be in all habitable rooms where smoke detection is not currently installed. This smoke detection, which can be battery-powered, should be placed in proximity to windows. At windows where the vertical gap between windows is more than 1m, these may be omitted since they are at lower risk of leapfrogging. We believe this to be a simple and effective risk mitigation measure. This action is in accordance with Article 8.1(b) of the Regulatory Reform (Fire Safety) Order 2005.

10.1.5 We consider that the continuous void behind timber cladding, inadequate cavity barriers and significant gaps in the CP board present a high fire risk to occupants of flats at The Linx. The position of the window and lack of cavity barriers within walls and around windows leaves windows above the fire flat vulnerable to flames/hot smoke. We have carried out a risk assessment of the external wall system (see Appendix C). The risk assessment reveals that the above factors plus the height of the building (over 18m above ground level) present a significant risk to life safety. The nature of risks present in the external wall means that, until remedial work is complete, interim measures are necessary to ensure the safety of occupants in the event of a fire.

10.1.6 We recommend that a simultaneous evacuation strategy should be employed. Simultaneous evacuation should be supported by a common alarm system linking all flats. When an alarm sounds within the fire flat, full and simultaneous evacuation will be initiated from the entire building. Note that a waking-watch system should be provided until the common fire alarm system is fully installed. Until all remedial work is carried out, recommendations on measures to take at this block to ensure the safety of occupants of the building in the event of a fire affecting the external wall comments are as follows:

- inform the Fire and Rescue Service that the external wall system has been identified as one posing significant risk of a full external envelope fire;
- the evacuation strategy for the building should be changed to a simultaneous evacuation;
- the simultaneous evacuation strategy should be supported by a wakingwatch system until the common fire alarm system is fully installed.

10.1.7 Further advice on the implementation of a 'waking watch' system is given below:

- ensure that all fire alarm and detection systems in each individual flat are working correctly;
- ensure that all flat doors are in good condition and adequately self closing, to protect the stairs and escape routes from fires in flats;
- ensure that the Fire Risk Assessment is updated. This should include:
 - an assessment of whether the access corridors would remain safe to use in the event of a full envelope fire;
 - an assessment of the provision of detection in each flat – it is strongly recommended that the provision of automatic detection in each flat is extended to provide a detector in each room. This would provide early warning of the ingress of smoke from an external envelope fire into a flat, enabling occupants to escape safely into the corridor before being overcome by smoke;
 - detailed resident engagement should be initiated immediately to ensure all residents are fully aware of the raised fire risk and the new alerting and evacuation procedures.

Advice on systems for alerting residents

10.1.8 As an initial measure, a waking watch, as described in the National Fire Chiefs Council guidance should be implemented to ensure that all residents are made aware of a fire and the importance of immediate simultaneous evacuation, as quickly as possible. The use of a waking watch should be considered as a short-term emergency measure. Investigations should be started immediately into the installation of a temporary common alarm system throughout the building as a replacement for the waking watch. This alarm system should be capable of detecting a confirmed fire in any one flat and of transmitting an alarm signal to every other flat. This might be in the form of a wireless system incorporating heat detector sounder bases in the entrance lobby of each flat, however the advice of a suitably qualified specialist should be sought before committing to a specification.

Details on Common Alarm System

10.1.8.1 The common fire alarm system should generally be designed in accordance with the recommendations of BS 5839-1 for a Category L5 system, except that the sound level of the fire alarm signal within flats need only be 85dB(A) at the open doorways of every bedroom in each flat. The system should link all flats of a block.

10.1.8.2 Type of detection - The common alarm system should incorporate heat detectors within each room that overlooks an area of external wall (except possibly toilets/bathrooms). Note that where detection already exists, there is no requirement to install additional detection. Heat detectors should also be included in any other areas of the building, such as plant rooms and other ancillary facilities with windows or vents through which a fire could spread.

10.1.8.3 Evacuation trigger - An immediate evacuation signal should be triggered by the operation of any single heat detector. It should be noted that the evacuation signal should not rely on the coincident operation of two heat detectors (sometimes described as "double knock"), as such an arrangement would not result in early enough operation of the evacuation signal in the event of a serious fire that might affect cladding.

10.1.9 In our professional opinion, the above actions will ensure that the development complies with Requirement B4 to Schedule 1 of Building Regulations and MHCLG Guidance.

2.1.2 LS/087 by Façade Remedial Consulting

Façade Remedial Consulting conducted intrusive investigations at two specific locations, focusing on Wall Types 4 and 5. The report provides a summary of the findings from these intrusive investigations, which are critical to understanding the condition and necessary remediation of the building's exterior. It is recommended to read the entire report; the report relies on certain findings from their intrusive investigations, these are summarised below:

Wall Type 4 Trespa Meteon Cladding

This wall type was not inspected intrusively all the way to the plasterboard; the inspection only extended to the Bitvent.

Table 8 Report LS/087 Wall Type 4 Build up

Material name	Combustibility	Reference
8mm Trespa Meteon HPL panel	D-s2, d0	N/A
Steel fixing system	At least A2-s1, d0	N/A
35mm Cavity	N/A	N/A
Cement particle board (not inspected past CP board)	B-s1, d0	N/A
20mm Xtratherm combustible phenolic insulation	Class F	e.g. Xtratherm Thin-R Insulation Agrément Certificate 08/4613 Product Sheet 3 [Internet]. BBA; 2017 [cited 08 January 2021]. Available from: https://www.xtratherm.com/app/uploads/2018/04/BBA_084613_Thin-R_XT_CW-XT_CWP-31.01.2018.pdf "The products are not classified as non-combustible or of limited combustibility, and the Certificate holder has not declared a reaction to fire classification in accordance with BS EN 13501-1 : 2007" (ibid.)
Bitvent	N/A	N/A

- Cavity barriers at compartment lines: Not present
- Cavity barriers around openings: Not present

External Wall 5-old: Timber Shiplap Cladding

This wall type was not inspected intrusively all the way to the plasterboard; the inspection only extended to the Dupont Tyvek House Wrap membrane. It should also be noted that during CHPK FE inspections, this wall type was confirmed to be the same as Wall Type 3 but with a white paint coating. Therefore, this wall type is classified as Wall Type 3 in his report.

Table 9 Report LS/087 Timber Shiplap Cladding Build up (Wall Type 3)

Material name	Combustibility	Reference
18mm Cedar Cladding	D-s2, d0	N/A
20x50mm timber battens	D-s2, d0	N/A
50mm Cavity	N/A	N/A
Dupont Tyvek House Wrap membrane	N/A	N/A

- **Cavity barriers at compartment lines:** Not evidence observed
- **Cavity barriers around openings:** Not evidence observed

2.1.3 FRA Final V1 The Linx May 2020 by Flame Risk Safety Solutions Ltd

Information within the Flame Risk Safety Solutions 15th May 2020 FRA is relied upon throughout this report. It is recommended to read the entire report; their action plan is summarised below:

- Remove the chimenea from the open deck adjacent apartment 512. Inform all residents of the danger of having open flamed heaters and barbeques in the communal areas and also on apartment balconies and penthouse apartment decks.
- Remove the timber decking that is fitted to all apartment balconies and replace with non-combustible materials.
- Inform all residents that if they wish to smoke on the decks then once they have finished they should remove all ashtrays and cigarette end containers from the decks and not place them near to the timber cladding.
- Remove the plastic draught excluder that is fitted to the fire door giving access to the North staircase at level 3.
- Remove all furniture and rubbish stored on the decks. Inform residents that all the deck areas should be kept free from obstruction at all times.
- It is recommended that all of the plastic panelling from the underside of all decks is removed as soon as possible and that a suitable alternative of non-combustible material is used as replacement.
- Fit a leather locking strap to the top landing valve to the dry riser in the South staircase enclosure.

It was also documented that the compartmentation was found to be acceptable. Additionally, it should be noted that a cladding inspection carried out by ERC Façade Remedial Contracts was referenced; however, this report was not made available for review.

2.1.4 MC283 by Flame Risk Safety Solutions Ltd

This report sets out the consultation with the Greater Manchester Fire and Rescue Service following initial thoughts and recommendations/actions.

Initial recommendations and actions:

1. Remove all the plastic lining to the deck soffits. If this is replaced it should be with non-combustible lining materials.
2. As a priority, set up a programme to replace all the HPL cladding from the building and replace with non-combustible materials. Ensure that when replacing these panels, cavity barriers are installed behind the cladding to limit the spread of fire both vertically and horizontally.
3. In the short term, cavity barriers should be placed vertically behind the timber cladding on all levels. These should follow the lines of compartmentation /separating walls between each apartment. Replacement horizontal cavity barriers should be placed behind the timber cladding at the junction of the cladding and the deck soffit. At top deck level this should be at the junction of the cladding and the weather awning. We recommend that in prioritising this work, urgent attention is given to ensuring that there are adequate horizontal fire barriers behind the timber cladding at fourth and fifth storeys, to prevent the spread of flames upwards towards the roof top HPL cladding.
4. Ensure cavity barriers are installed behind the timber cladding around the fire doors and frames and compartment lines of the protected staircase enclosures at all levels.
5. Apply a coat of fire-retardant varnish to the timber cladding to further restrict the spread of fire

Agreed Actions via Consultations and Liaison with GMFRS:

1. We agreed that the plastic linings which underpin the deck access on every level poses a risk of fire spread and requires removing as soon as possible.
2. The electrical wires which run underneath the deck on each level should be secured with suitable fixings to mitigate the risk of firefighter entrapment.

3. Horizontal cavity barriers should be installed where the deck meets the wall at each level to ensure a fire cannot spread vertically between floors.
4. Cavity barriers are installed around any openings i.e. windows and doors.
5. Cavity barriers should be present on the upper floors between the cladding and the "weather awning".
6. Ensure the guttering down spouts which penetrate the decks at each level are suitably fire stopped.
7. The schedule of works should include for the removal of the timber tongue and groove panels to reduce the risk of horizontal fire spread as well as the High Pressure Laminate cladding on the upper floors.

2.1.5 CHPK FE's Site Visit(s)

As part of CHPK FE's appointment to provide a FRAEW of The Linx Building, CHPK FE undertook an external wall system inspection of in accordance with the document *"The Linx- Further Openings Mark up-CL-MJ-17-07-2024-Issued"* Issued by CHPK FE prior to the inspections. The focus of the site intrusive inspections is to determine the as built wall construction in addition to gathering evidence of the existence of passive fire measures within the external wall (cavity barriers and fire stops) and their workmanship quality. Site visits were undertaken on 18/12/2023, 12/03/2024, 28/03/2024, 12/08/2024, 15/08/2024 and 16/08/2024.

Following the site visits on 12/03/2024 and 28/03/2024, it was confirmed that:

12/03/2024: Site visual inspection on the identified timbers at the underside of the balcony walkways that are the only means of escape for the associated flats. It is unknown if additional combustible materials still exist behind the timbers.

28/03/2024: Inspection of the curtain wall confirmed that the insulation material is a plastic foam, which is different from the design specification, i.e. mineral wool.

Findings from the visits carried out on 18/12/2023, 12/08/2024, 15/08/2024 and 16/08/2024 can be found in documents *"FE02072 - Linx, Simpson Street - FRAEW Intrusive Inspection Site Visit Report"* and *"FRAEW Intrusive Inspection Site Visit Report 02"* was issued following the inspections. The findings of these reports can be found in Appendix B and C.

2.1.6 Fire Strategy

The building fire strategy is not provided; however, information from the building's FRA includes aspects of the building's fire strategy. In aspects where details are unknown, assumptions are made using the guidance that was relevant at the time and observations made during the site inspection.

2.1.7 Current Interim Measures

The building is not currently operating any interim measures.

2.1.8 Management Policies Strategy

There are no known management plans in place with regard to the external walls or attachments.

2.1.9 Evacuation Strategy

The block was designed to operate under the stay-put strategy.

2.1.10 Fire Alarm and Detection System

Detector heads were observed within the stair cores.

It was noted in the fire risk assessment (FRA Final V1 The Linx May 2020) that *"Each apartment is fitted with both heat and smoke detectors in kitchen/lounge area and in the hallway. The system appears to be to BS5839 Part 6, Category LB2"*

It was also confirmed that the car park was provided with detection; *"The garage/basement area is covered by a fire warning and detection system that appears to be to BS5839 Part 1, Category L5. The system consists of both heat and smoke detectors throughout the garage area and includes manual call points located at strategic locations throughout the area. The main fire warning system alarm panel is located in the caretaker's office in the garage area."*

2.1.11 Means of Escape

All flats are accessed via a balcony approach, which provides a common pathway for residents. The building features two stair cores, but the balcony approaches do not connect to both stair cores. This means that residents can only access one of the stair cores, effectively limiting their means of escape to a single route in the event of an emergency. This arrangement can be observed in

Each stair core is designed to lead directly to the outside, which is beneficial for evacuation. Additionally, the stair cores are equipped with smoke control systems, specifically an Openable Vents (OVs)



Figure 3 Balcony approaches single means of escape

2.1.12 Internal Fire Spread (Linings)

To inhibit the spread of fire within the building, surface finishes and floor coverings should not comprise materials that might contribute to the surface spread of flame and/or fire or adversely affect the means of preventing such propagation. The specification of lining materials is expected to be in accordance with the guidance in Approved Document B.

2.1.13 Internal Fire Spread (Structure)

The following assumptions have been made about the building structure:

- Flats form their own fire compartments
- Floors are compartment floors
- The residential areas are fully separated from the non-residential areas by compartment walls and floors

2.1.14 Compartmentation

Approved Document B requires a high level of compartmentation for buildings containing blocks of flats.

The fire risk assessment (FRA Final V1 The Linx May 2020) indicated that all compartmentation was in acceptable condition at the time of the assessment. However, it is important to note that this FRA was conducted in 2020, and there is a possibility that compromises in the compartmentation may have occurred since then. During the recent site visits, however, no such breaches were observed.

2.1.15 Sprinklers

No sprinklers are provided due to the height of the building and the date that it was constructed.

2.1.16 Cavity Barriers and Fire Stopping

The design guidance would require cavity barriers within the external wall construction, around openings, and fire stopping to lines of separation such as party walls or compartment floors to prevent fire spread laterally between the fire compartments.

2.1.17 Access and Facilities for Fire Service

The building is accessible from multiple streets: Angel Street, Simpson Street, Ludgate Street, and Napels Street. The Simpson Street and Napels Street elevations provide access into the stair cores. These stair cores and associated dry risers are located approximately 20 meters away from Angel Street. This is not in accordance with guidance which requires the dry riser inlet to be within 18 metres of the fire appliance. The Angel and Ludgate Street entrances provide access into the courtyard, from which the stair cores can also be accessed.

Ludgate Street, and Napels Street are relatively narrow, which could pose challenges for fire appliances attempting to reach the building's access points from these directions. To-scale drawings were not provided, so a detailed assessment of the accessibility for fire appliances on these streets could not be conducted. Based on satellite imagery, Simpson Street has a width of 4m, which should be able to provide access to a fire appliance in accordance with guidance at the time of construction.

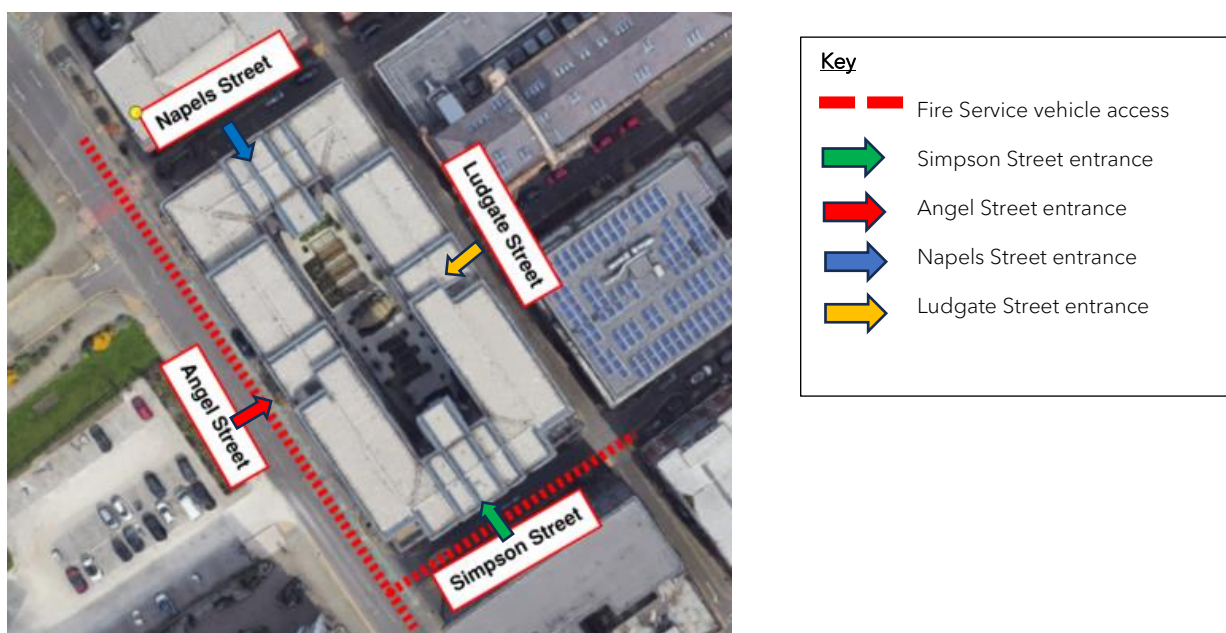


Figure 4 Fire Service Access

The building is provided with two dry risers, one in each stair core and the stair core is provided with smoke control in the form of automatically openable vents (AOV). Smoke detector heads within the stair core are present to activate the AOV.

2.1.18 Fire Strategy Drawings

Fire strategy drawings were not provided, it is expected that the fire strategy drawings are the guidance in Approved Document B applicable at the time of construction.

3. Step 3: Risk Factor Information

Step 3 involves the analysis of the information gathered whether client issued data and/or intrusive site inspections to determine the differing Wall Type build ups. The Linx supports 7 differing Wall Types and 5 Attachment Types as confirmed during CHPK FE site visits and provided documentation. These are as follows:

External Wall Types:

1. External Wall 1: Vertical Cedar Wood Cladding
2. External Wall 2A: Masonry with Aluminium frame inner leaf
3. External Wall 2B: Solid blockwork
4. External Wall 3: Horizontal Cedar Wood Cladding
5. External Wall 4: Trespa Meteon
6. External Wall 5: Curtain Walling
7. External Wall 6: Render

Attachment Types:

8. Attachment Type 1: Cantilever Balconies
9. Attachment Type 2: Terrace Balconies
10. Attachment Type 3: Inset Balconies
11. Attachment Type 4: Balcony Approach
12. Attachment Type 5: Juliet balcony

Window and doors

13. External Window 1: Aluminium
14. External Door 1: Timber
15. External Door 2: Wood effect PVC

Note: Windows and doors in the external walls are not classified as wall types but have been considered in their material construction in relation to acting as cavity closers as part of external wall types.

3.5 External Wall & Attachment Elevations

The following figures below demonstrate the building's elevations and the identified locations and extent of the external wall types or attachments.

It is important to highlight that when blockwork is present on External Wall Types 2A and 2B, the exterior remains unchanged, while the interior configuration differs. Blockwork used in the apartments is classified as Wall Type 2A, sharing the same internal build-up as the brickwork based on prior experience, whereas blockwork serving the car park is classified as Wall Type 2B. The wall build details can be found in Table 13 and Table 15.

Note: The general arrangement of the wall build-ups is demonstrated below but it should be noted that these are based on the provided documents and intrusive site visits as such these should be reviewed in good faith as the exact measurements may vary due to workmanship and uncertainties when using measuring equipment. The following figures demonstrate the extent of the wall types and attachment present on the elevations.



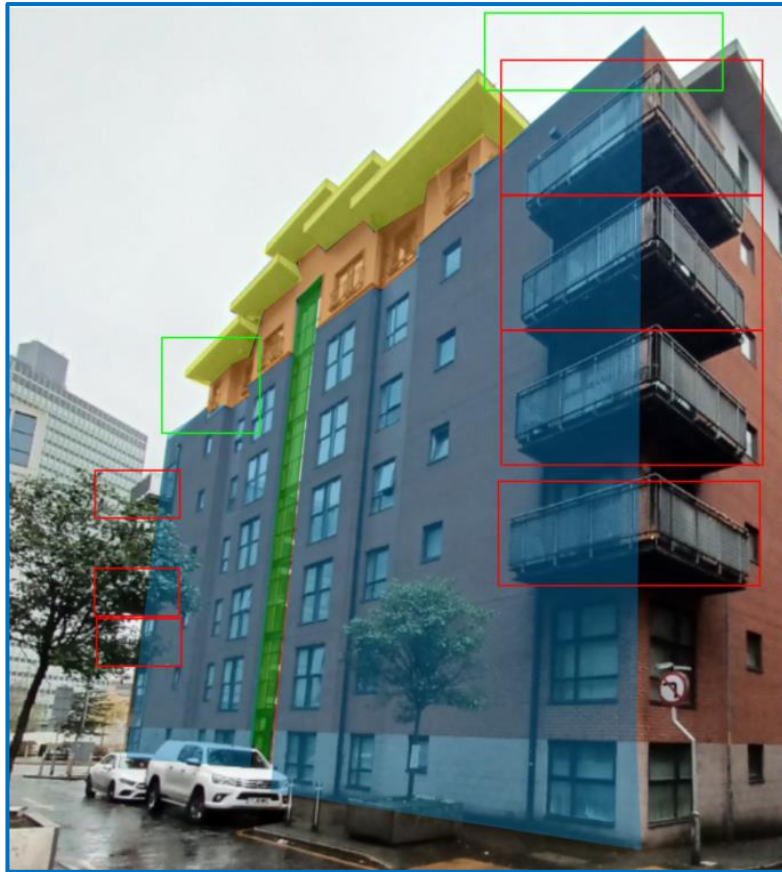
WT1	WT2A	WT2B	WT3	WT4	WT5	WT6
AT1	AT2	AT3	AT4	AT5		

Figure 5 Angel Street elevation extent of cladding (identical to Ludgate Street elevation)



WT1	WT2A	WT2B	WT3	WT4	WT5	WT6
AT1	AT2	AT3	AT4	AT5		

Figure 6 Naples Street elevation extent of cladding



WT1	WT2A	WT2B	WT3	WT4	WT5	WT6
AT1	AT2	AT3	AT4	AT5		

Figure 7 Simpson Street elevation extent of cladding



WT1	WT2A	WT2B	WT3	WT4	WT5	WT6
AT1	AT2	AT3	AT4	AT5		

Figure 8 Simpson street courtyard elevation extent of cladding (identical to Napels street courtyard elevation)

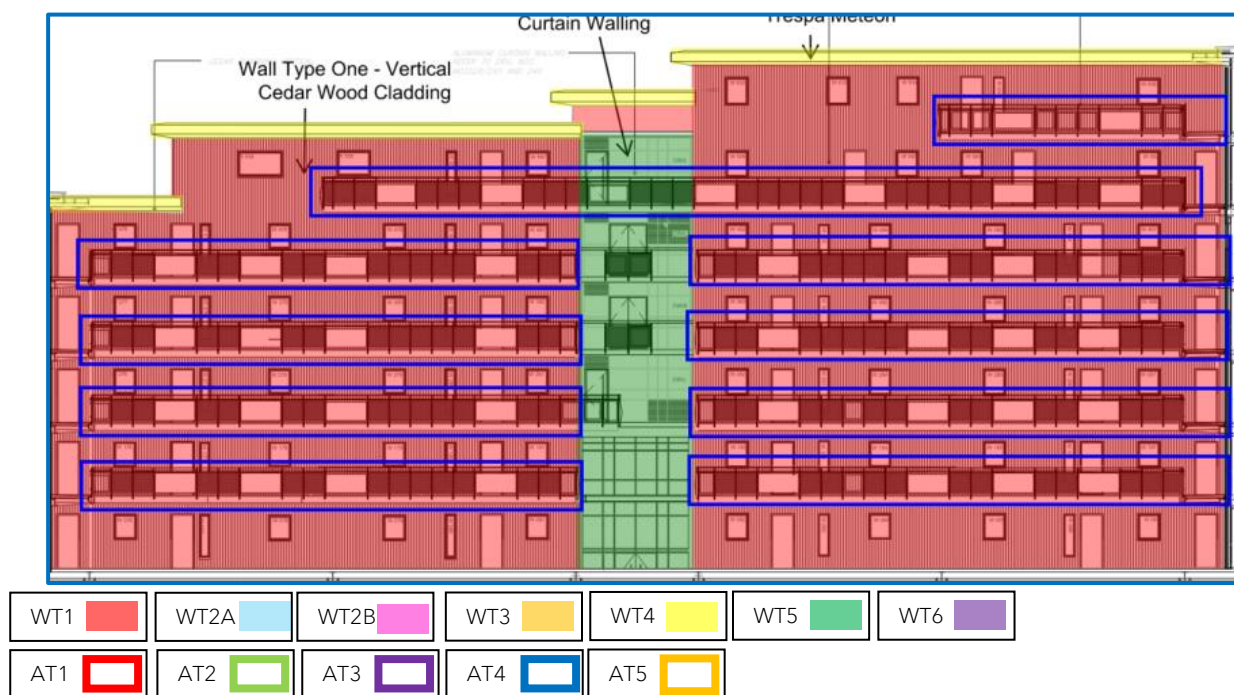


Figure 9 Angel Street courtyard elevation extent of cladding (identical to Ludgate street courtyard elevation)

3.6 Wall Types and Attachments

3.2.1 External Wall 1: Vertical Cedar Wood Cladding



Figure 10: Wall Type 1 Vertical Cedar Wood Cladding

During the information gathering exercise CHPK FE were not provided with the original as build drawings.

Table 10 Wall Type 1 Vertical Cedar Wood Cladding Survey Locations/Elevations

Survey Locations/Elevations	
Survey Locations	Refer to Appendix B
Elevations	Courtyard elevations in line with Angel and Ludgate Street

The following table demonstrates the materials discovered and in the order of installation of the wall buildup from external to internal.

Table 11 Wall Type 1 Vertical Cedar Wood Cladding Wall Build-up

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	20mm Vertical Cedar Wood Cladding panel	A1	D	
Cavity	65mm Cavity present due to cladding framing system	B1	N/A	
Breather membrane	Kloeber/ Tyvek membrane	B1 & G2	F	
Sheathing Board	10mm Cement Particle board	C1	B	
Insulation	18mm PIR Insulation The PIR insulation was fixed to the sheathing board.	D1	F	
Insulation	100mm Mineral wool insulation	E2	A1	
Inner leaf	Foil backed plasterboard	E3	A2-s1, d0	

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
Cavity barrier: At floor slab	Cavity stop sock was present below the floor slab level. It should be noted that the cavity barrier did not extend across the entire floor slab, allowing for the possibility of it being bypassed. There was no cavity observed between the sheathing board and the plasterboard. The void is full filled with insulation.	B21		
Cavity barrier: At compartment wall	Cavity stop sock was present at the compartment wall in some locations. It should be noted, that this was not located in all inspected locations.	B4 & B6		
Cavity Barrier: At head of the window	20mm Timber batten	F1	N/A	
Cavity Barrier: At jamb of the window	30mm Timber batten was present between the sheathing board and the timber cladding. This did not close the cavity properly. The metal element of the framing system to which the sheathing board and plasterboard are attached closes the jamb.	G1	N/A	
Cavity Barrier: At cill of the window	Aluminium window frame closed the cill of the window	H1	N/A	
* Please refer to Appendix B				

Further Comments

This wall type was located within the courtyard only, in particular, the Angel and Ludgate Street courtyard elevations, and faces the balcony approach serving flats.

Cavity barriers were partially installed at the compartment wall locations. They were also present at the floor slab level; however, their installation was such that smoke could bypass them. Timber battens were observed around openings, but their depth and manner of installation do not allow them to function effectively as cavity barriers.

No setbacks or overhangs were observed.

Penetrations

Present but cavity barriers are not present as per ENG-1111358-CS by Vemco Consulting.

BR135 Benchmark

We have compared this external wall type to the cladding systems found on the BR135 database and we **did not** find a cladding system with the configuration and components that would constitute an exact match to what our inspections found on the building. Therefore, a BR135 benchmark rating would not be applicable in this case.

3.2.2 Wall Type 2A – Masonry with Aluminium Frame Inner Leaf



Figure 11: Wall Type 2A – Masonry with Aluminium Frame Inner Leaf

During the information gathering exercise CHPK FE were not provided with the original as build drawings.

Table 12 Wall Type 2A – Masonry with Aluminium Frame Inner Leaf Survey Locations/Elevations

Survey Locations/Elevations	
Survey Locations	As per Appendix B
Elevations	Simpson, Ludgate, Angel and Napels Street elevations

The following table demonstrates the materials discovered and in the order of installation of the wall buildup from external to internal.

Table 13 Wall Type 2A – Masonry with Aluminium Frame Inner Leaf Wall Build-up

Wall Build Up:	Description	Photo Reference*	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	90mm Brick In certain areas, blockwork was also observed instead of brickwork, though it was limited to the lowest floor of the building.	A12	A1	
Cavity	50mm Cavity present due to cladding framing system	B10	N/A	
Breather membrane	Tyvek membrane	B10	E	
Sheathing Board	20mm Bitroc sheathing board	C12	E	
Insulation	110mm mineral wool insulation	D11	A1	
Inner leaf	Foil-backed plasterboard	D10	A2-s1, d0	
Structural element	Steel element	C12	A1	
Cavity Barrier: At party wall	Present in the form of a green stop sock between the brick and the sheathing board.	B12 & C12	N/A	

Wall Build Up:	Description	Photo Reference*	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
	It should be noted that the vertical did not extend the full vertical length of the building, as it stopped at the floor slab level, which was not provided with a horizontal cavity barrier.			
Cavity Barrier: At floor slab level	Present in the form of a green stop sock between the brick and the sheathing board. This was not observed at all inspected locations.	D13	N/A	
Cavity Barrier: At window jamb	A cavity barrier is present in the form of a green stop sock at some locations but missing in others.	F10 & B11	N/A	
Cavity Barrier: At window cill	Not present. Only the window frame was observed.	E10	N/A	
Cavity Barrier: At window head	A cavity barrier is present in the form of a green stop sock.	E11	N/A	
* Please refer to Appendix B				

Further Comments

This wall type was located on the Simpson, Ludgate, Angel and Napels Street elevations.

Cavity barriers were partially installed at the compartment floor slab locations. They were also present at the compartment wall locations; however, their installation was such that smoke could bypass them. The installation of cavity barriers at the window jambs was inconsistent, with some areas having cavity barriers and others lacking them. While cavity barriers were observed at the head of the window, the cill remained unprotected.

No setbacks or overhangs were observed.

Penetrations

Not present.

BR135 Benchmark

We have compared this external wall type to the cladding systems found on the BR135 database and we **did not** find a cladding system with the configuration and components that would constitute an exact match to what our inspections found on the building. Therefore, a BR135 benchmark rating would not be applicable in this case.

3.2.3 Wall Type 2B – Solid Blockwork

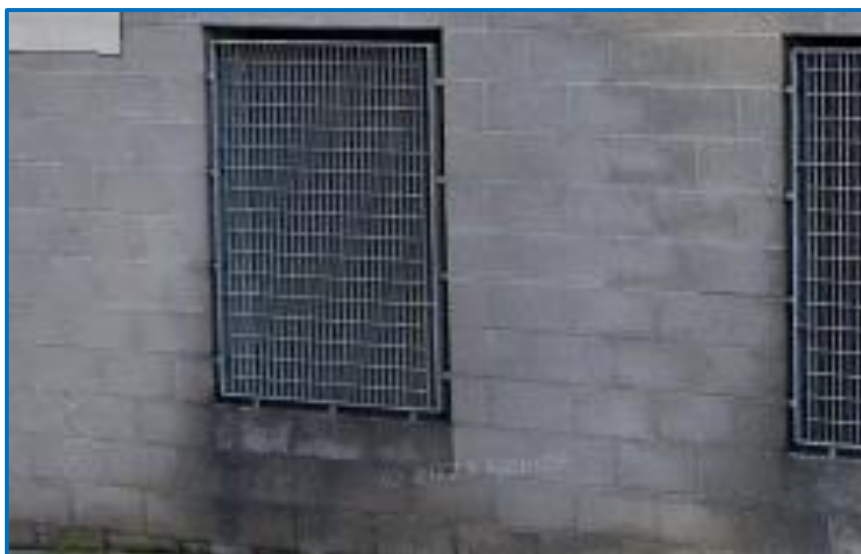


Figure 11: Wall Type 2B – Solid Blockwork

During the information gathering exercise CHPK FE were not provided with the original as build drawings.

Table 14 Wall Type 2B – Solid Blockwork Survey Locations/Elevations

Survey Locations/Elevations	
Survey Locations	Not intrusively investigated but was visually investigated.
Elevations	Simpson, Ludgate, Angel and Napels Street elevations

The following table demonstrates the materials discovered and in the order of installation of the wall buildup from external to internal.

Table 15 Wall Type 2B – Solid Blockwork Wall Build-up

Wall Build Up:	Description	Photo Reference*	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	100mm Solid blockwork	A1	A1	
Cavity	Unknown	N/A	N/A	
Inner leaf	100mm Solid blockwork	C1	A1	
Cavity Barrier: Around Window	Cavity is completely closed of using blockwork	B1	N/A	
Junction between soffit and wall	A concrete soffit layered with a cementitious material was observed throughout the car park. At the junction with the external wall, the soffit abuts a steel 'I' beam and is sealed with mastic to the blockwork.	B1	N/A	

Wall Build Up:	Description	Photo Reference*	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
* Please refer to Appendix D				

Further Comments

This wall type was located on the Simpson, Ludgate, Angel and Napels Street elevations and is provided to the car park area only. The opening provided to this elevation are completely closed using blockwork.

No setbacks or overhangs were observed.

Since this build-up is limited to the lower floors of the building, consists of double solid blockwork, and includes separation between the floors, no further assessment of the wall type is necessary as the risk is considered very low.

Penetrations

Not present.

BR135 Benchmark

We have compared this external wall type to the cladding systems found on the BR135 database and we **did not** find a cladding system with the configuration and components that would constitute an exact match to what our inspections found on the building. Therefore, a BR135 benchmark rating would not be applicable in this case.

3.2.4 Wall Type 3 – Horizontal Cedar Wood Cladding



Figure 12: Wall Type 3 – Horizontal Cedar Wood Cladding

During the information gathering exercise CHPK FE were not provided with the original as build drawings.

Table 16 Wall Type 3 – Horizontal Cedar Wood Cladding Survey Locations/Elevations

Survey Locations/Elevations	
Survey Locations	As per Appendix B
Elevations	Simpson and Napels Street courtyard elevations

The following table demonstrates the materials discovered and in the order of installation of the wall build-up from external to internal.

Table 17 Wall Type 3 – Horizontal Cedar Wood Cladding Wall Build-up

Wall Build Up:	Description	Photo Reference *	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	20mm Horizontal Cedar Wood Cladding panel	A7	D	
Cavity	40mm Cavity present due to cladding framing system	B7	N/A	
Breather membrane	Tyvek membrane	B7	E	
Sheathing Board	10mm Cement particle board	C7	B	
Insulation	18mm PIR Insulation The PIR insulation was fixed to the sheathing board.	D8	F	
Insulation	100mm mineral wool insulation	A8	A1	
Inner leaf	Foil backed plasterboard	D8	A2-s1, d0	
Cavity Barrier: At door jamb	The door opening is closed by the 60mm white timber door frame. The void between the sheathing board and the plasterboard is closed by the steel framing system.	C7 & D7	N/A	

Wall Build Up:	Description	Photo Reference *	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
Cavity Barrier: At door head	The door opening is closed by the 60mm white timber door frame.	E7	N/A	
Cavity barrier: At compartment wall	Not present	A9	N/A	
Cavity barrier: At floor slab	Cavity stop sock was present below floor slab level. It should be noted that the cavity barrier did not extend across the entire floor slab, allowing for the possibility of it being bypassed. There was no cavity observed between the sheathing board and the plasterboard. The void is full filled with insulation.	C22	N/A	
Cavity Barrier: At jamb of the window	30mm Timber batten was present between the sheathing board and the timber cladding. This did not close the cavity properly.	A9	N/A	
Cavity Barrier: At head of the window	20mm Timber batten	A9	N/A	
* Please refer to Appendix B				

Further Comments

This wall type was located within the courtyard only, in particular, the Simpson and Napels Street courtyard elevations, and faces the balcony approach serving flats.

Cavity barriers were not observed at the compartment wall locations. They were present at the floor slab level; however, their installation was such that smoke could bypass them. Timber battens were observed around openings. The timber battens around the door were observed to close the cavity sufficiently. Adequate cavity barriers were also not present around the window openings as per ENG-1111358-CS report by Vemco Consulting

No setbacks or overhangs were observed.

Penetrations

Present but cavity barriers are not present as per ENG-1111358-CS by Vemco Consulting.

BR135 Benchmark

We have compared this external wall type to the cladding systems found on the BR135 database and we **did not** find a cladding system with the configuration and components that would constitute an exact match to what our inspections found on the building. Therefore, a BR135 benchmark rating would not be applicable in this case.

3.2.5 Wall Type 4 – Trespa Meteon



Figure 12: Wall Type 4 – Trespa Meteon

During the information gathering exercise CHPK FE were not provided with the original as build drawings.

Table 18 Wall Type 4 – Trespa Meteon Survey Locations/Elevations

Survey Locations/Elevations	
Survey Locations	As per Appendix B and LS/087 report by Façade Remedial Consulting
Elevations	Present on all elevations as a decorative protruding soffit at the head of the wall. On the upper most floor on the Napels Street elevation this wall type functions as an external wall.

The following table demonstrates the materials discovered and in the order of installation of the wall buildup from external to internal.

Table 19 Wall Type 4 – Trespa Meteon Wall Build-up

Wall Build Up:	Description	Photo Reference *	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	10mm Trespa cladding panel	A19 & B19	D	
Cavity	35mm Cavity present due to cladding framing system	Inspection Summary - Area 1 as per LS/087 report	N/A	
Sheathing Board	10mm Cement particle board	Inspection Summary - Area 1 as per LS/087 report	B	
Insulation	12mm PIR Insulation The PIR insulation was fixed to the sheathing board.	Inspection Summary - Area 1 as per LS/087 report	F	
Sheathing Board	10mm Bitvent impregnated insulation board	Inspection Summary - Area 1 as per LS/087 report	E	
Inner leaf	Assumed plasterboard	N/A	A2-s1, d0	

Wall Build Up:	Description	Photo Reference *	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
Cavity Barrier: At window jamb	Not observed	N/A	N/A	
Cavity Barrier: At window head	Not observed	N/A	N/A	
Cavity Barrier: At window head	Not observed	N/A	N/A	
Cavity barrier: At compartment wall	Not present as documented in Inspection Summary - Area 1 in the LS/087 report, not likely to be required due to the location of the wall type.	N/A	N/A	
Cavity barrier: At floor slab	Not present as documented in Inspection Summary - Area 1 in the LS/087 report, not likely to be required due to the location of the wall type.	N/A	N/A	
* Please refer to Appendix B				

Further Comments

Present on all elevations as a decorative protruding soffit at the head of the wall.

On the upper most floor on the Napels Street elevation this wall type functions as an external wall.

Cavity barriers were not observed in any required location as documented in Inspection Summary - Area 1 in the LS/087 report

Setbacks and overhangs were observed

Penetrations

Not present

BR135 Benchmark

We have compared this external wall type to the cladding systems found on the BR135 database and we **did not** find a cladding system with the configuration and components that would constitute an exact match to what our inspections found on the building. Therefore, a BR135 benchmark rating would not be applicable in this case.

3.2.6 Wall Type 5 – Curtain Walling



Figure 12: Wall Type 5 – Curtain Walling

During the information gathering exercise CHPK FE were not provided with the original as build drawings.

Table 20 Wall Type 5- Curtain Walling Survey Locations/Elevations

Survey Locations/Elevations	
Survey Locations	As per Appendix B
Elevations	Present on all elevations in moderate amounts

The following table demonstrates the materials discovered and in the order of installation of the wall buildup from external to internal.

Table 21 Wall Type 5 – Curtain Walling Wall Build-up

Wall Build Up:	Description	Photo Reference*	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	Metal sandwich panel 2mm metal panel 20mm extruded polystyrene insulation 2mm metal panel	A14	F	
Cavity	20mm Cavity present	B14	N/A	
Structural element	Steel element	B14	A1	
Firestop: At floor slab level	Not present	A14 to D14	N/A	
* Please refer to Appendix B				

Further Comments

N/A

Penetrations

Not present

BR135 Benchmark

We have compared this external wall type to the cladding systems found on the BR135 database and we **did not** find a cladding system with the configuration and components that would constitute an exact match to what our inspections found on the building. Therefore, a BR135 benchmark rating would not be applicable in this case.

3.2.7 Wall Type 6 – Insulated Render



Figure 12: Wall Type 6 – Insulated Render

During the information gathering exercise CHPK FE were not provided with the original as build drawings.

Table 22 Wall Type 6 – Insulated Render Survey Locations/Elevations

Survey Locations/Elevations	
Survey Locations	As per Appendix C
Elevations	Present on all elevations in moderate amounts

The following table demonstrates the materials discovered and in the order of installation of the wall buildup from external to internal.

Table 23 Wall Type 6 – Insulated Render Wall Build-up

Wall Build Up:	Description	Photo Reference *	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	30mm Hard Render	A1	A1	
Membrane	Paper membrane	F2	F	
Cavity	20mm Cavity present	G2	N/A	
Substrate	15mm Hardboard	G2	D	
Cavity	140 -150mm cavity	G2	N/A	
Inner leaf	20mm Plasterboard	G6	A2-s1, d0	
Cavity barriers	Not present nor required as the wall type only spans the lift shaft and associated risers/ cupboards. Metal cavity closers were observed between the substrate and the plasterboard.	C8	N.A	

Wall Build Up:	Description	Photo Reference *	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
* Please refer to Appendix C				

Further Comments

This wall type only spans over the lift shaft and associated cupboards, it is not provided for any flats.

Penetrations

Not present

BR135 Benchmark

We have compared this external wall type to the cladding systems found on the BR135 database and we **did not** find a cladding system with the configuration and components that would constitute an exact match to what our inspections found on the building. Therefore, a BR135 benchmark rating would not be applicable in this case.

3.2.8 Attachment Type 1 – Cantilever balcony

Table 24 Attachment Type 1: Cantilever Balcony Survey Locations/Elevations

Survey Locations/Elevations	
Survey Locations	Ground floor survey allowed inspection of balconies on the first floor
Elevations	Simpson, Ludgate, Napels and Angel Street Elevations

Table 25 Attachment Type 1: Cantilever Balcony

Element	Description	Photo Reference*	Combustibility Rating (Euroclass BS En 13501)	Classification rating
Balcony Framework/ Structure	Steel	A23	N/A	
Balustrades	Steel	A23	N/A	
Handrail	Steel	A23	N/A	
Decking	Timber	A23	D	
Supports	Not present	A23	N/A	
Soffits	Not present	A23	N/A	
*Refer to Appendix B				

Further Comments

No further Comments

3.2.9 Attachment Type 2: Terrace Balcony

Table 26 Attachment Type 2: Terrace Balcony Survey Locations/Elevations

Survey Locations/Elevations	
Survey Locations	From balconies
Elevations	Simpson, Ludgate, Napels and Angel Street Elevations

Table 27 Attachment Type 2: Terrace Balcony

Element	Description	Photo Reference*	Combustibility Rating (Euroclass BS En 13501)	Classification rating
Balcony Framework/ Structure	Masonry	A15	N/A	
Balustrades	Outer: Masonry Inner: timber	A15 & A18	D	
Handrail	Steel	A18	N/A	
Decking	Concrete	A15	A1	
Supports	Not present	A15	N/A	
Soffits	Not present	A15	N/A	

Element	Description	Photo Reference*	Combustibility Rating (Euroclass BS En 13501)	Classification rating
*Refer to Appendix B				

Further Comments

No further Comments

3.2.10 Attachment Type 3: Inset Balcony

Table 28 Attachment Type 3: Inset Balcony Survey Locations/Elevations

Survey Locations/Elevations	
Survey Locations	From balconies
Elevations	Ground floor survey allowed inspection of balconies on the first floor Ludgate, and Angel Street Elevations

Table 29 Attachment Type 3: Inset Balcony

Element	Description	Photo Reference*	Combustibility Rating (Euroclass BS En 13501)	Classification rating
Balcony Framework/ Structure	Steel	B23	N/A	
Balustrades	Steel	B23	N/A	
Handrail	Steel	B23	N/A	
Decking	Timber	B23	D	
Supports	Not present	B23	N/A	
Soffits	Not present	B23	N/A	
*Refer to Appendix B				

Further Comments

No further Comments

3.2.11 Attachment Type 4: Balcony Approach

Table 30 Attachment Type 4: Balcony Approach Survey Locations/Elevations

Survey Locations/Elevations	
Survey Locations	From balconies
Elevations	These are communal balconies used to access all flats within the courtyard. These are present on all courtyard elevations

Table 31 Attachment Type 4: Balcony Approach

Element	Description	Photo Reference*	Combustibility Rating (Euroclass BS En 13501)	Classification rating
Balcony Framework/ Structure	Steel	D21	N/A	
Balustrades	Steel	D21	N/A	
Handrail	Steel	D21	N/A	
Decking	Concrete	D21	A1	
Supports	Not present	B23	N/A	
Floor shuttering	Steel	C21	N/A	
Soffit 1	Two types of soffit materials were observed; one of them was a 3mm PVC panel. This was fixed to the steel balcony structure via timber framing.	A22	B	
Soffit 2	Two types of soffit materials were observed; one of them was a 20mm plywood board. This was fixed to the steel balcony structure via timber framing.	B22	D	
External wall face	Timber cladding	B5, D21, E22	D	
*Refer to Appendix B				

Further Comments

No further Comments

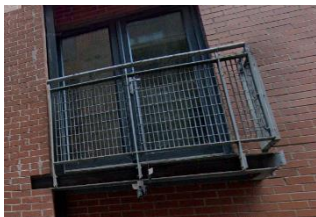
3.2.12 Attachment Type 5: Juliet Balcony

Table 32 Attachment Type 5: Juliet Balcony Survey Locations/Elevations

Survey Locations/Elevations	
Survey Locations	Ground floor survey allowed inspection of balconies on the first floor
Elevations	Ludgate, and Angel Street Elevations

Table 33 Attachment Type 3: Inset Balcony

Element	Description	Photo Reference	Combustibility Rating (Euroclass BS En 13501)	Classification rating
Balcony Framework/ Structure	Steel		N/A	
Balustrades	Steel		N/A	

Element	Description	Photo Reference	Combustibility Rating (Euroclass BS En 13501)	Classification rating
Handrail	Steel		N/A	
Decking	Steel		N/A	
Supports	Not present		N/A	
Soffits	Not present		N/A	

Further Comments
No further Comments

3.2.13 Window Type 1: Aluminium Window

Table 34 Survey Locations/Elevations Window Type 1: Aluminium Window

Survey Locations/Elevations	
Survey Locations	Windows observable from balcony or ground level
Elevations	All

Table 35 Window Type 1: Aluminium Windows

Element	Description	Photo Reference	Combustibility Rating (Euroclass BS En 13501)	Classification rating
Framework	Aluminium	H1	A1	
Support	N/A	N/A	N/A	
Glazing	Assumed double glazing	A9	N/A	

Further Comments
N/A

3.2.14 External Door Type 1: Timber Door

Table 36 Survey Locations/Elevations External Door Type 1: Timber Door

Survey Locations/Elevations	
Survey Locations	Doors observable from balcony or ground level
Elevations	All,

Table 37 External Door Type 1: Timber door

Element	Description	Photo Reference	Combustibility Rating (Euroclass BS En 13501)	Classification rating
Framework	>38mm Timber	D7 & E7	D	
Support	N/A	N/A		
Door	Assumed >38mm Timber	A7	D	

Further Comments
N/A

3.2.15 External Door Type 2: Wood Effect PVC Door

Table 38 Survey Locations/Elevations External Door Type 2: Wood Effect PVC Door

Survey Locations/Elevations	
Survey Locations	Doors observable from the terrace balcony
Elevations	All elevation with a terrace balcony

Table 39 External Door Type 2: Wood Effect PVC Door

Element	Description	Photo Reference	Combustibility Rating (Euroclass BS En 13501)	Classification rating
Framework	PVC	D16	B	
Support	N/A	N/A		
Door	PVC	D16	B	
Glazing	Assumed to be double-glazing	A16	N/A	

Further Comments

N/A

4 Step 4: Risk Factor Appraisal

The data obtained in Step 3 relating to the building and the construction of external walls is classified into Positive, Neutral, and Negative sub-factors and a thorough assessment is conducted to facilitate forming a judgment on the specific risk factor. Subsequently, the risk factors are assessed holistically in Step 4 to arrive at the overall risk rating of an external wall system which is then compared with the Step 5 benchmark criteria.

The assessor has taken a pragmatic approach to carefully weight and consolidate the risk factors to prevent inaccuracies or predispositions. Due care has been taken by the assessor to avoid classifying a wide range of conditions based on the worst-case scenario. The assessor has refrained from considering that the conditions and events are not linked and has identified high-risk characteristics, common causes, and other scenarios in which the combined probability surpasses the product of the component probabilities. The errors due to intentional overrating of high consequences associated with low probabilities or intentional underrating of low consequences associated with high probabilities has been avoided.

The three risk factors considered in this FRAEW in line with PAS 9980 are as follows:

Fire Performance - What level of risk does the external wall system pose in case of a fire?

These factors influence the potential speed and extent of fire and smoke spread, predominantly based on the properties and fire performance of the materials, components, systems, and configurations utilised in the construction of external walls on buildings.

Façade configuration - What level of risk does the external wall system pose in case of a fire?

These factors as stated in PAS9980 :2022, Annex N, influence the potential speed and extent of fire and smoke spread based on:

- The extent to which the building is covered by combustible cladding
- The presence or otherwise of continuous cavities
- The extent of openings in the external building envelope
- The location of the cladding

Fire Strategy/Fire Hazards - What level of risk does the characteristics of the fire strategy pose to the safety of occupants and the efficacy of firefighting within the building during a fire involving external cladding?

These factors influence the ability of the occupants to escape in the event of a fire and secondary fire aided by the external wall and the efficiency of the fire and rescue services to intervene effectively.

4.1 Fire Performance

4.1.1 Fire Performance: External Wall 1

Table 40 Fire Performance - External Wall 1: Vertical Cedar Wood Cladding

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
K.1	General (Calorific Value, testing data, etc.)		The vertical cedarwood cladding system is made up of timber, PIR insulation and CP board. The timber is classified as Class D. The PIR is determined to be Class F. The calorific values of timber and PIR are between 3 and 35 MJ/kg, it gives a neutral influence in fire performance. There have not been tests conducted for the building with BS 8414 methodology which can classify the external wall system in accordance with BS 135.	
K.2	External surface reaction to fire classification			The external surface is a 20mm cedarwood cladding. This material is determined to be Class D. This is a negative influence in fire performance as the external surface is combustible and medium contribution to fire.
K.3	Facing/Cladding panel			Timber, in combination with combustible insulation and substrate. Mechanically fixed High HRR
K.4	Panel Construction		Limited size of gaps between panels. Less than 10mm	
K.5	Cavities			Facings into the cavity combustible, but Class C or lower Cavity barriers are partially present. The cavity barriers around the openings are not satisfactory. There are timber battens around the windows (< 38mm).

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
				Cavity barrier provision is not complete at compartment lines and where installed poor workmanship was observed hence rendering them non-compliant.
K.6	Insulation			Class F PIR insulation Class A Mineral wool insulation
K.7	Substrate		Cement particle board of European Class B and combustible insulation. This does not significantly contribute to the fire spread.	
K.8	Sheathing board reaction to fire classification		The combustibility of the sheathing board is not known, but assumed to be European Class B.	
K.9	Insulated core panels	N/A	N/A	N/A
K.10	ETIC - External thermal insulation composite system	N/A	N/A	N/A
K.11	Infill/Spandrel panels	N/A	N/A	N/A
K.12	Internal finishes		Foiled backed plasterboard	
Based on the above risk factors, the Fire Performance Risk Factor for External Wall Type 1 is assessed a NEGATIVE factor				

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4.1.2 Fire Performance: External Wall 2A

Table 41 Fire Performance - External Wall 2A: Masonry with Aluminium frame inner leaf

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
K.1	General (Calorific Value, testing data, etc.)		The Masonry wall with Aluminium Frame Inner Leaf is made up of masonry, Bitroc, aluminium frame and plasterboard. The Bitroc is combustible type of sheathing board which is determined to be Class E. Due to its classification, it gives a neutral influence in fire performance. No BS 8414 tested build-ups with Bitroc sheathing board could be found.	
K.2	External surface reaction to fire classification	The external surface is 100mm masonry. This material is Class A1 rated.		
K.3	Facing/Cladding panel	Low HRR Mechanically fixed Rigid non-combustible facing (Brick) Class A1		
K.4	Panel Construction	N/A	N/A	N/A
K.5	Cavities			Facings into the cavity combustible, but Class C or lower Cavity barriers are partially present around windows and compartment lines. Where installed poor workmanship is observed hence rendering them non-compliant.
K.6	Insulation	Class A Mineral wool insulation		
K.7	Substrate			Class E Bitroc sheathing board

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
K.8	Sheathing board reaction to fire classification			Class E
K.9	Insulated core panels	N/A	N/A	N/A
K.10	ETIC - External thermal insulation composite system	N/A	N/A	N/A
K.11	Infill/Spandrel panels	N/A	N/A	N/A
K.12	Internal finishes		Foiled backed plasterboard	
Based on the above risk factors, the Fire Performance Risk Factor for External Wall Type 2A is assessed a Neutral factor				

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4.1.3 Fire Performance: External Wall 3

Table 42 Fire Performance - External Wall 3: Horizontal Cedar Wood Cladding

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
K.1	General (Calorific Value, testing data, etc.)		The horizontal cedarwood cladding system is made up of timber, PIR insulation and CP board. The timber is classified as Class D. The PIR is determined to be Class F. The calorific values of timber and PIR are between 3 and 35 MJ/kg, it gives a neutral influence in fire performance. There have not been tests conducted for the building with BS 8414 methodology which can classify the external wall system in accordance with BS 135.	
K.2	External surface reaction to fire classification			The external surface is a 20mm cedarwood cladding. This material is determined to be Class D. This is a negative influence in fire performance as the external surface is combustible and medium contribution to fire.
K.3	Facing/Cladding panel			Timber, in combination with combustible insulation and substrate. Mechanically fixed High HRR
K.4	Panel Construction		Limited size of gaps between panels. Less than 10mm	
K.5	Cavities			Facings into the cavity combustible, but Class C or lower Cavity barriers are partially present. The cavity barriers around the openings are not satisfactory. There are timber battens around the windows (< 38mm).

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
				Cavity barrier provision is not complete at compartment lines and where installed poor workmanship was observed, hence rendering them non-compliant.
K.6	Insulation			Class F PIR insulation Class A Mineral wool insulation
K.7	Substrate		Cement particle board of European Class B and combustible insulation. This does not significantly contribute to the fire spread.	
K.8	Sheathing board reaction to fire classification		The combustibility of the sheathing board is not known, but assumed to be European Class B.	
K.9	Insulated core panels	N/A	N/A	N/A
K.10	ETIC - External thermal insulation composite system	N/A	N/A	N/A
K.11	Infill/Spandrel panels	N/A	N/A	N/A
K.12	Internal finishes		Foiled backed plasterboard	
Based on the above risk factors, the Fire Performance Risk Factor for External Wall Type 3 is assessed a NEGATIVE factor				

4.1.4 Fire Performance: External Wall 4

Table 43 Fire Performance - External Wall 4: Trespa Meteon

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
K.1	General (Calorific Value, testing data, etc.)		The Trespa meteon HPL panel, PIR insulation and CP board. The timber is classified as Class D. The PIR is determined to be Class F. The calorific values of timber and PIR are between 3 and 35 MJ/kg, it gives a neutral influence in fire performance. There is a tested BS 8414 build-up for Trespa Meteon FR (Class B version) and it did not pass a BS 8414 test.	
K.2	External surface reaction to fire classification			The external surface is a 8-10mm Trespa meteon HPL panel. This material is determined to be Class D. This is a negative influence in fire performance as the external surface is combustible and medium contribution to fire.
K.3	Facing/Cladding panel			HPL, in combination with combustible insulation and substrate. Mechanically fixed High HRR This is a negative influence in fire performance as the external surface is combustible and medium contribution to fire.
K.4	Panel Construction		Limited size of gaps between panels. Less than 10mm	
K.5	Cavities			Facings into the cavity combustible, but Class C or lower Cavity barriers not installed
K.6	Insulation			Class F PIR insulation and Class E 10mm Bitvent impregnated insulation board

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
K.7	Substrate		Cement particle board of European Class B and combustible insulation.	
K.8	Sheathing board reaction to fire classification		The combustibility of the sheathing board is not known, but assumed to be European Class B.	
K.9	Insulated core panels	N/A	N/A	N/A
K.10	ETIC - External thermal insulation composite system	N/A	N/A	N/A
K.11	Infill/Spandrel panels	N/A	N/A	N/A
K.12	Internal finishes		Assumed foiled backed plasterboard	
Based on the above risk factors, the Fire Performance Risk Factor for External Wall Type 4 is assessed a NEGATIVE factor				

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4.1.5 Fire Performance: External Wall 5

Table 44 Fire Performance - External Wall 5: Curtain Walling

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
K.1	General (Calorific Value, testing data, etc.)			The extent of the curtain walling spandrel panel is limited however it is a metal (likely to be aluminium) sandwich panel with 20mm extruded polystyrene insulation core. In the absence of documentation, this panel shall be treated as a Category 3 MCM. Materials with a calorific value (gross heat of combustion) of >35 MJ/kg No BS 8414 tested build-ups could be found with aluminium spandrel panel with a combustible insulation core.
K.2	External surface reaction to fire classification	The external surface is predominantly glass separated by aluminium spandrel panels. This material is determined to be Class A2. This is a positive influence in fire performance as the external surface is non-combustible.		
K.3	Facing/Cladding panel			Combustible MCM Mechanically fixed Mechanically fixed High HRR This is a negative influence in fire performance as the external surface is combustible and medium contribution to fire.
K.4	Panel Construction	No gap		

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
K.5	Cavities	N/A	N/A	N/A
K.6	Insulation			20mm extruded polystyrene insulation core Class F
K.7	Substrate	N/A	N/A	N/A
K.8	Sheathing board reaction to fire classification	N/A	N/A	N/A
K.9	Insulated core panels	N/A	N/A	N/A
K.10	ETIC - External thermal insulation composite system	N/A	N/A	N/A
K.11	Infill/Spandrel panels	N/A	N/A	Readily combustible insulation, but only encapsulated in aluminium or other low melting point metal
K.12	Internal finishes		Assumed foiled backed plasterboard	
Based on the above risk factors, the Fire Performance Risk Factor for External Wall Type 5 is assessed a NEGATIVE factor				

4.1.6 Fire Performance: External Wall 6

Table 45 Fire Performance - External Wall 6: Render

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
K.1	General (Calorific Value, testing data, etc.)		The render wall type consists of a hard render over a hardwood sheathing board and a large cavity. The typical calorific value of timber such as the hardwood boards within the render design is approximately 18-20 MJ/kg. This classification means that it provides a neutral influence in fire performance. No BS 8414 tested build-ups could be found with this render design	
K.2	External surface reaction to fire classification	The external surface is hard render. This material is determined to be Class A1. This is a positive influence in fire performance as the external surface is non-combustible.		
K.3	Facing/Cladding panel	Low HRR Rigid non-combustible facings in the form of hard render.		
K.4	Panel Construction	N/A	N/A	N/A
K.5	Cavities		Approximately 140mm-150mm unfilled cavity. The metal framing system between the sheathing board and plasterboard closes the cavities.	
K.6	Insulation	N/A	N/A	N/A
K.7	Substrate	N/A	N/A	Exact Classification unknown, Hardboard typically Class C - Class D, Class D
K.8	Sheathing board reaction to fire classification	N/A	N/A	
K.9	Insulated core panels	N/A	N/A	N/A

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
K.10	ETIC - External thermal insulation composite system	N/A	N/A	N/A
K.11	Infill/Spandrel panels	N/A	N/A	N/A
K.12	Internal finishes		20mm plasterboard	
Based on the above risk factors, the Fire Performance Risk Factor for External Wall Type 6 is assessed a Neutral factor				

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4.2 Façade Configuration

The height of the building is also included as a risk factor and the extent to which a building's external walls pose a risk is inherently limited if the number of storeys is limited, the height of the building also affects the time needed to escape from the building and the ability for firefighters to operate quickly and efficiently.

4.2.1 Fire Configuration: External Wall 1

Table 46 Façade Configuration External Wall 1: Vertical Cedar Wood Cladding

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
N.1	Building height			Building height is greater than 18 metres.
N.2	Height of base of cladding above ground			Less than 2m above floor level.
N.3	Extent of cladding - Coverage, Spanning Compartments %			Entire façade covered. Scope for a cladding fire to breach compartment wall and floor boundaries significantly worsened by the nature and the extent of combustible material in the external wall construction.
N.4	Cavities			Cavity barriers are not present in all required locations. Where cavity barriers are present, the workmanship is poor hence rendering them non-compliant. Cavity barriers around openings are not satisfactory - Timber around the windows < 38mm.
N.5	Infill/Spandrel Panels	N/A	N/A	N/A
N.6	Setbacks	N/A	N/A	N/A
N.7	Overhangs and Projections			The soffit of the balcony walkway forms a construction similar to an overhang which can promote horizontal fire spread along the underside of the balcony walkway.

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
N.8	Proximity to windows and openings to the accommodation			Horizontally adjacent to windows and openings, and vertically in line with such openings, such that fire and smoke spread into the buildings, causing secondary fires, as a result of direct flame impingement, is highly likely
N.9	Presence of Vents or Other openings for services in the façade			Vents present Assumed to not be provided with cavity barriers.
N.10	Proximity of combustible elements of a façade to escape route windows and other openings			Combustible elements are present on the façade of the open balcony which serves as the only exit to all flats. This can give rise to untenable conditions which will compromise the only escape for all occupants.
N.11	Attachments - Balcony, Combustible Features, etc.		Balcony approach with combustible soffit present. Steel shuttering present.	
N.12	Proximity of combustible elements of a façade to a neighbouring building	N/A	N/A	N/A
Based on the above risk factors, the Façade Configuration Risk Factor for External Wall Type 1 is given a NEGATIVE factor				

4.2.2 Fire Configuration: External Wall 2A

Table 47 Façade Configuration External Wall 2A: Masonry with Aluminium frame inner leaf

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
N.1	Building height			Building height is greater than 18 metres.
N.2	Height of base of cladding above ground	Less than 2m above floor level however the external surface is non combustible brick hence this is deemed to be a positive factor.		
N.3	Extent of cladding - Coverage, Spanning Compartments %			Entire façade covered. Scope for a cladding fire to breach compartment wall and floor boundaries significantly worsened by the nature and the extent of combustible material in the external wall construction.
N.4	Cavities			Cavity barriers are present but not present in all required locations. Cavity barrier provision is very inconsistent.
N.5	Infill/Spandrel Panels	N/A	N/A	N/A
N.6	Setbacks		Minor setbacks present.	
N.7	Overhangs and Projections	N/A	N/A	N/A
N.8	Proximity to windows and openings to the accommodation			Horizontally adjacent to windows and openings, and vertically in line with such openings, such that fire and smoke spread into the buildings, causing secondary fires, as a result of direct flame impingement of the Class E Bitroc sheathing board is possible.
N.9	Presence of Vents or Other openings for services in the façade	N/A	N/A	N/A

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
N.10	Proximity of combustible elements of a façade to escape route windows and other openings			The façade is of one leaf of masonry construction and one leaf of aluminium frame construction with combustible sheathing board. This wall type is adjacent to the escape routes, windows and other openings and likely to spread fire and smoke to the escape route.
N.11	Attachments - Balcony, Combustible Features, etc.			Vertically stacked timber balconies are present.
N.12	Proximity of combustible elements of a façade to a neighbouring building	N/A	N/A	N/A
Based on the above risk factors, the Façade Configuration Risk Factor for External Wall Type 2A is given a NEGATIVE factor				

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4.2.3 Fire Configuration: External Wall 3

Table 48 Façade Configuration External Wall 3: Horizontal Cedar Wood Cladding

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
N.1	Building height			Building height is greater than 18 metres.
N.2	Height of base of cladding above ground			Less than 2m above floor level.
N.3	Extent of cladding - Coverage, Spanning Compartments %			Entire façade covered. Scope for a cladding fire to breach compartment wall and floor boundaries significantly worsened by the nature and the extent of combustible material in the external wall construction.
N.4	Cavities			Cavity barriers are not present in all required locations. Where cavity barriers are present, the workmanship is poor, hence rendering them non-compliant. Cavity barriers around window openings are not satisfactory - Timber around the windows < 38mm.
N.5	Infill/Spandrel Panels	N/A	N/A	N/A
N.6	Setbacks	N/A	N/A	N/A
N.7	Overhangs and Projections			The soffit of the balcony walkway forms a construction similar to an overhang which can promote horizontal fire spread along the underside of the balcony walkway.
N.8	Proximity to windows and openings to the accommodation			Horizontally adjacent to windows and openings, and vertically in line with such openings, such that fire and smoke spread into the buildings, causing secondary fires, as a result of

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
				direct flame impingement, is highly likely
N.9	Presence of Vents or Other openings for services in the façade			Vents present Assumed to no be provided with cavity barriers.
N.10	Proximity of combustible elements of a façade to escape route windows and other openings			Combustible elements are present on the façade of the open balcony which serves as the only exit to all flats. This can give rise to untenable conditions which will compromise the only escape for all occupants.
N.11	Attachments - Balcony, Combustible Features, etc.		Balcony approach with combustible soffit present. Steel shuttering present.	
N.12	Proximity of combustible elements of a façade to a neighbouring building	N/A	N/A	N/A
Based on the above risk factors, the Façade Configuration Risk Factor for External Wall Type 3 is given a NEGATIVE factor				

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4.2.4 Fire Configuration: External Wall 4

Table 49 Façade Configuration External Wall 4: Trespa Meteon

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
N.1	Building height			Building height is greater than 18 metres.
N.2	Height of base of cladding above ground		>5 m At this height, the likelihood of a fire originating externally (e.g. involving a parked vehicle or waste skip and started either accidentally or deliberately) igniting the cladding is highly unlikely. However, the wall type can be ignited via a fire on the terrace balconies.	
N.3	Extent of cladding - Coverage, Spanning Compartments %			Limited in extent and not vertically aligned, such as to delay significantly fire spread to windows and other openings on upper level. However, there is scope for a cladding fire to breach compartment wall and floor boundaries significantly worsened by the nature and the extent of combustible material in the external wall construction.
N.4	Cavities		Cavity limited in vertical extent. Cavity limited in extent and running horizontally only. Cavity barriers not present	
N.5	Infill/Spandrel Panels	N/A	N/A	N/A
N.6	Setbacks	N/A	N/A	N/A
N.7	Overhangs and Projections			This wall type makes up the overhang decorative soffit to the building.

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
				It is possible for flame from a window to ignite the wall type.
N.8	Proximity to windows and openings to the accommodation	Window opening limited in extent and present on elevations where this wall type covers only one compartment.		
N.9	Presence of Vents or Other openings for services in the façade	N/A	N/A	N/A
N.10	Proximity of combustible elements of a façade to escape route windows and other openings			Combustible elements are present above the balcony approach which serves as the only exit to some flats. The wall type is above the escape route such that burning material or debris from a fire involving the external walls above will pose a danger to escaping occupant.
N.11	Attachments - Balcony, Combustible Features, etc.	N/A	N/A	N/A
N.12	Proximity of combustible elements of a façade to a neighbouring building	N/A	N/A	N/A
Based on the above risk factors, the Façade Configuration Risk Factor for External Wall Type 4 is given a NEGATIVE factor				

4.2.5 Fire Configuration: External Wall 5

Table 50 Façade Configuration External Wall 5: Curtain Walling

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
N.1	Building height			Building height is greater than 18 metres.
N.2	Height of base of cladding above ground		>2 m above ground level.	
N.3	Extent of cladding - Coverage, Spanning Compartments %			Limited in extent however does span across vertical compartmentation lines. Wall type does not span across horizontal compartmentation lines;
N.4	Cavities		Cavity present Fire stop not present Cavity limited in vertical extent	
N.5	Infill/Spandrel Panels			In a vertical continuous line with windows such as to increase the likelihood of secondary fires. Spans across a compartment floor
N.6	Setbacks	N/A	N/A	N/A
N.7	Overhangs and Projections	N/A	N/A	N/A
N.8	Proximity to windows and openings to the accommodation			Curtain Walling system consists of openings as part of the design. These are vertically in line such that fire and smoke spread into the buildings, causing secondary fires, as a result of direct flame impingement, is highly likely.
N.9	Presence of Vents or Other openings for services in the façade	N/A	N/A	N/A
N.10	Proximity of combustible elements of a façade to escape route windows and other openings			This wall type is provides to the two stair cores (Napels and Simpson Street elevations).

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
				In this scenario, the wall type is isolated to the stair cores. As the stair is a fire sterile area, it is not likely that a fire will originate in this area and prevent occupants from escaping. Where this wall type is present on the Ludgate and Angel Street elevations, it is above final exits such that burning material or debris from a fire involving the external walls above will pose a danger to escaping occupant.
N.11	Attachments - Balcony, Combustible Features, etc.	N/A	N/A	N/A
N.12	Proximity of combustible elements of a façade to a neighbouring building	N/A	N/A	N/A
Based on the above risk factors, the Façade Configuration Risk Factor for External Wall Type 5 is given a NEGATIVE factor				

4.2.6 Fire Configuration: External Wall 6

Table 51 Façade Configuration External Wall 6: Render

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
N.1	Building height			Building height is greater than 18 metres.
N.2	Height of base of cladding above ground		<2 m - As it encloses the lift shafts it spans from the Ground floor to the topmost floor. The extent, however, is entirely in the internal courtyard so the wall type would not be exposed to the general public.	
N.3	Extent of cladding - Coverage, Spanning Compartments %	Limited in extent and not vertically or horizontally aligned with apartments. Limited to the lift shaft. There is no scope for a fire to compromise an apartment.		
N.4	Cavities	The inspection uncovered a large cavity in the wall build-up (140mm-150mm) without any insulation. Metal closers were inspected in a couple of locations at compartment lines. No windows and other openings in the wall type except for the fire rated riser doors.		
N.5	Infill/Spandrel Panels	N/A	N/A	N/A
N.6	Setbacks	N/A	N/A	N/A
N.7	Overhangs and Projections	N/A	N/A	N/A
N.8	Proximity to windows and openings to the accommodation	Remote from windows and openings, such that fire and smoke spread into the building, causing secondary fires, is not possible		

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
N.9	Presence of Vents or Other openings for services in the façade	N/A	N/A	N/A
N.10	Proximity of combustible elements of a façade to escape route windows and other openings		The plywood/hardboard sheathing boards are only separated from the internals of the lift shaft by 20mm plasterboard and a cavity. The escape route into the stairs is along the balcony approach directly opposite the lift shaft. Whilst this is at least 3 metres away from the facing material of the lift shaft, in the event of a post flashover fire this could pose a risk to the integrity of the escape route for all occupants.	
N.11	Attachments - Balcony, Combustible Features, etc.	N/A	N/A	N/A
N.12	Proximity of combustible elements of a façade to a neighbouring building	N/A	N/A	N/A
Based on the above risk factors, the Façade Configuration Risk Factor for External Wall Type 6 is given a POSITIVE factor				

4.3 Fire Strategy and Hazard Risk Factors

The Fire Strategy/Fire Hazards Risk Factor does not constitute a Fire Risk Assessment (FRA) and does not aim to alter the building's existing FRA. The considerations in the Fire Strategy/Fire Hazards Risk Factor are limited to the ability of the occupants to escape in the event of a fire and secondary fire aided by the external wall and the efficiency of the fire and rescue services to intervene effectively.

Table 52 Strategy Risk Factors

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
F.1	Occupancy		General needs housing	
F.2	Evacuation strategy		A stay put policy is currently in place.	
F.3	Escape route design			Open balcony approach to flats. The escape route is in close proximity to combustible external wall construction. Final exits from escape routes in close proximity to external wall construction that could result in danger to escaping occupants in the event of burning material or debris falling from a fire involving the external walls above. In this situation, burning material and debris from the fire above can also pose a danger to firefighters entering or leaving the building.
F.4	Compartmentation			Internal compartmentation is assumed to be satisfactory. There is compartmentation designed into the building in line with the stay put policy, but the compartmentation is ineffective due to cavity barrier issues and needs to be rectified. This also applies to the cavity barriers at compartment lines within the external walls.
F.5	Smoke control		Ventilation provisions are included throughout the building, including AOV's at	

PAS 9980 Ref	Risk Factor	Positive	Neutral	Negative
			the top of the stairs and mechanical ventilation in the car park. These need to be regularly tested as an ongoing concern. Open balcony walkways provide good ventilation to prevent smoke from spreading into the stair.	
F.6	Fire detection & fire alarm system		Each apartment is fitted with both heat and smoke detectors in kitchen/lounge areas and in the hallway which appears to be an L2 system. These systems, along with the L5 system in the garage area, are tested weekly and maintained.	
F.7	Fire suppression	N/A	N/A	N/A
F.8	Firefighting facilities		Adequate access for firefighting vehicles.	
F.9	Rising mains		Suitable rising main present	
F.10	Lifts for use by firefighters			Absence of firefighting lift in buildings above 18 m
F.11	Specific fire hazards			Balconies that have combustible elements, and which are of such a size that it is foreseeable they will be used for significant items of furniture, for holding storage or waste, or for inherently hazardous activities such as holding barbecue
Based on the above risk factors, the Fire Strategy Risk Factor for the building is given a Negative classification				

4.4 Fire Service Intervention

The table below sets out an approximate time for fire service intervention response and arrival procedures before commencing operations. These timelines cannot be guaranteed and are affected by traffic conditions, nearest fire station on prior deployment and that this may not be suitable for your building or purpose group.

Table 53 Fire Fighting Intervention timeline (Based on Section 13.13 of CIBSE Guide E – Fourth Edition)

Fire Fighter Intervention	
Initiation to fire detection	120 Seconds
Actuation of fire detector to transmission of alarm	10 Seconds
Processing by central monitoring station	60 Seconds
Receipt of call by fire service mobilising control	10 Seconds
Transmission to fire station and response	60 Seconds
Travelling time of fire service	240 Seconds (4 Minutes)*
Arrival protocol and entry preparation time	180 Seconds
Firefighter travel to operational bridgehead	90 seconds
Firefighter travel walking up two flights of stairs to fire floor from operational bridgehead (75 Seconds)	75 Seconds
Total time since initiation	845 Seconds, 15 Minutes
* Dependant on traffic	

4.5 Key Site Observations

It was confirmed onsite that the balcony approach soffit had been replaced previously. It was also observed that the sixth-floor balcony approach had not been fitted with a soffit.

5. Conclusions and Recommendations

5.1 Step 5: Evaluation against Benchmark Criteria

The findings from Step 4 are integrated into a "high" to "low" risk scale at this stage. This enables the FRAEW assessor to determine the overall risk associated with a specific external wall type. If the assessment identifies a hazard with imminent consequences to occupants, a "high" risk classification will be assigned. In such cases, CHPK FE will immediately communicate this critical finding to the Client.

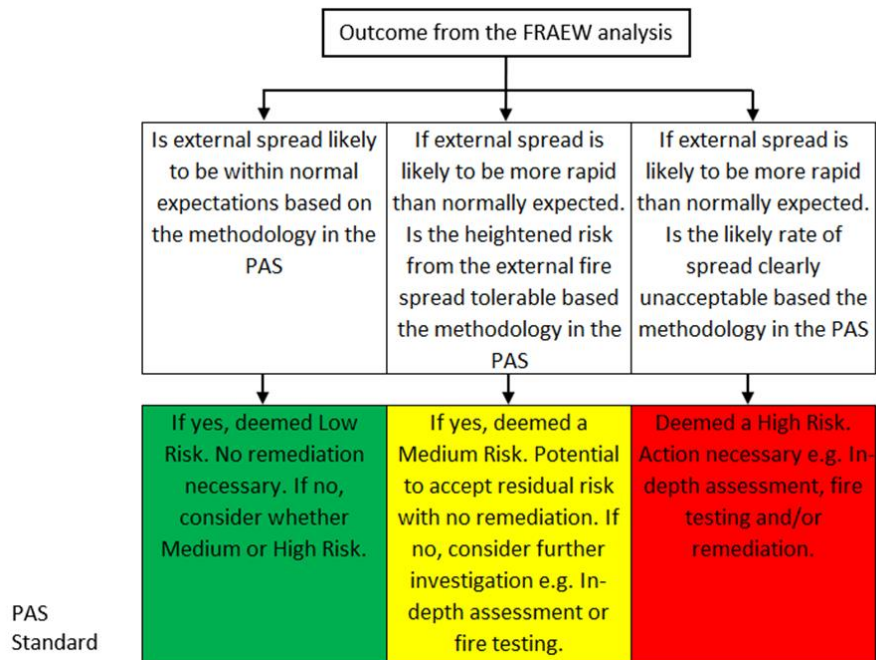


Figure 13: The PAS standard of assessing the risk factors

In the context of a risk-based approach outlined in Section 7 of PAS 9980:2022, the risk in question is the combination of the following benchmark criteria:

- The likelihood of undue speed of fire and smoke spread over the external walls of the building
- The likely consequences, namely the resultant occurrence and extent of secondary fires on other floor levels
- The likely consequences in terms of evacuation before the onset of untenable conditions in the escape routes, whether evacuation is intended to occur immediately on the warning of fire or, in the case of a stay put strategy, at some point during the course of the fire
- The likelihood of effective intervention by the fire and rescue service at a point before all of the above occur

5.2 Conclusions and Recommendations External Wall 1: Vertical Cedar Wood Cladding

Table 54 External Wall 1 Summary of Benchmark Criteria Evaluations

Fire Performance: The risk of undue flame and smoke spread over the external wall	High
Façade Configuration: The risk of resultant occurrence and extent of secondary fires	High
Fire Strategy: The risk to person during an evacuation leading to untenable conditions such as compromised means of escape	High
Part of the Fire Strategy: The risk to occupants due to absence of intervention by the fire and rescue services prior to occurrence of the aforementioned events	Medium

Fire Engineers Comments

This construction consists of a timber exterior surface material, which is considered a moderate contributor to fire which is able to self-sustain fire growth or spread. It is likely to become involved in any substantial fire to which it is exposed, and ultimately to spread flame across all surfaces extending up and across from the point of ignition.

The wall contains Class F PIR and Class A1 mineral wool insulation, situated within the framing system zone between the Class B sheathing board and plasterboard. There is a cavity between the timber cladding and the sheathing board. The provision of cavity barriers at compartment lines is partial, and in some locations where they are installed, poor workmanship renders them ineffective. Additionally, timber battens are present around the window openings, but these are inadequate due to their dimensions and fittings.

Vents are also present, and it is assumed they are not protected by any form of cavity barrier. This wall type is used along the balcony approach. If involved in a fire, it could obstruct the escape route for all occupants on that floor.

This type of construction is in relation to the benchmark criteria in table L.9 of the PAS 9980

In the event of a fire, fire spread is likely to be at a higher rate within expectations for a building of this height given the circumstances at the building in question; and/or

- Fire spread is likely to give rise to widespread secondary fires resulting in occupants being significantly harmed or prevented from escaping
- Fire is likely to spread in such a way that the communal means of escape will be compromised before occupants can safely use them to escape

Considering the above, the risk for this external wall construction is deemed to be **HIGH AND NOT TOLERABLE**.

Proposed Remedial Actions

Remove and replace all combustible materials in the wall type with materials that achieve Euroclass A2-s1, d0 or better. This also includes the sheathing board. All combustible membranes must also be removed and replaced with membranes achieving a minimum of class B-s3, d0. Install cavity barriers at the relevant locations in conjunction with the current Building Regulations in Approved Document B. This is required in all locations where this wall type is present.

Timescale for remediation work to commence

We recommend that the process of remediation should be started as soon as practicably reasonable of receipt of the FRAEW, PAS9980:2022 Report.

5.3 Conclusions and Recommendations External Wall 2A: Masonry with Aluminium frame inner leaf

Table 55 External Wall 2A Summary of Benchmark Criteria Evaluations

Fire Performance: The risk of undue flame and smoke spread over the external wall	Medium
Façade Configuration: The risk of resultant occurrence and extent of secondary fires	High
Fire Strategy: The risk to person during an evacuation leading to untenable conditions such as compromised means of escape	High
Part of the Fire Strategy: The risk to occupants due to absence of intervention by the fire and rescue services prior to occurrence of the aforementioned events	Medium

Fire Engineers Comments

This construction consists of a masonry exterior surface material, which is considered a low contributor to fire and is not able to self-sustain fire growth or spread.

The wall contains Class A1 mineral wool insulation, situated within the framing system zone between the Class F Bitroc sheathing board and plasterboard. The Sheathing board was also observed covering the structural steel floor.

There is a cavity between the brickwork and the sheathing board. The provision of cavity barriers at compartment lines is partial, and in some locations where they are installed, poor workmanship renders them ineffective. Ignition of the sheathing board could leave the cavity barriers lose their support. Additionally, cavity barrier provision around the window openings was inconsistent. This can allow fire and smoke to spread between compartments potentially resulting in secondary fires.

Vents are not present on this wall type.

This wall type is remote from the escape route and final exits, hence cannot hinder escape.

This type of construction is in relation to the benchmark criteria in table L.7 of the PAS 9980

In the event of a fire, fire spread is likely to be at a higher rate within expectations for a building of this height given the circumstances at the building in question; and/or

- Fire spread is likely to give rise to widespread secondary fires resulting in occupants being significantly harmed.
- Fire is likely to spread in such a way that the communal means of escape will not be compromised before occupants can safely use them to escape

Considering the above, the risk for this external wall construction is deemed to be **HIGH AND NOT TOLERABLE**.

Proposed Remedial Actions

Remove and replace all combustible materials in the wall type with materials that achieve Euroclass A2-s1, d0 or better. All combustible membranes must also be removed and replaced with membranes achieving a minimum of class B-s3, d0. Install cavity barriers at the relevant locations in conjunction with the current Building Regulations in Approved Document B. This is required in all locations where this wall type is present.

Timescale for remediation work to commence

We recommend that the process of remediation should be started as soon as practicably reasonable of receipt of the FRAEW, PAS9980:2022 Report.

5.4 Conclusions and Recommendations External Wall 3: Horizontal Cedar Wood Cladding

Table 56 External Wall 3 Summary of Benchmark Criteria Evaluations

Fire Performance: The risk of undue flame and smoke spread over the external wall	High
Façade Configuration: The risk of resultant occurrence and extent of secondary fires	High
Fire Strategy: The risk to person during an evacuation leading to untenable conditions such as compromised means of escape	High
Part of the Fire Strategy: The risk to occupants due to absence of intervention by the fire and rescue services prior to occurrence of the aforementioned events	Medium

Fire Engineers Comments

This construction consists of a timber exterior surface material, which is considered a moderate contributor to fire which is able to self-sustain fire growth or spread. It is likely to become involved in any substantial fire to which it is exposed, and ultimately to spread flame across all surfaces extending up and across from the point of ignition.

The wall contains Class F PIR and Class A1 mineral wool insulation, situated within the framing system zone between the Class B sheathing board and plasterboard. There is a cavity between the timber cladding and the sheathing board. The provision of cavity barriers at compartment lines is partial, and in some locations where they are installed, poor workmanship renders them ineffective. Additionally, timber battens are present around the window openings, but these are inadequate due to their dimensions and fittings.

Vents are also present, and it is assumed they are not protected by any form of cavity barrier. This wall type is used along the balcony approach. If involved in a fire, it could obstruct the escape route for all occupants on that floor.

This type of construction is in relation to the benchmark criteria in table L.9 of the PAS 9980

In the event of a fire, fire spread is likely to be at a higher rate within expectations for a building of this height given the circumstances at the building in question; and/or

- Fire spread is likely to give rise to widespread secondary fires resulting in occupants being significantly harmed or prevented from escaping
- Fire is likely to spread in such a way that the communal means of escape will be compromised before occupants can safely use them to escape

Considering the above, the risk for this external wall construction is deemed to be **HIGH AND NOT TOLERABLE**.

Proposed Remedial Actions

Remove and replace all combustible materials in the wall type with materials that achieve Euroclass A2-s1, d0 or better. This also includes the sheathing board. All combustible membranes must also be removed and replaced with membranes achieving a minimum of class B-s3, d0. Install cavity barriers at the relevant locations in conjunction with the current Building Regulations in Approved Document B. This is required in all locations where this wall type is present.

Timescale for remediation work to commence

We recommend that the process of remediation should be started as soon as practicably reasonable of receipt of the FRAEW, PAS9980:2022 Report.

5.5 Conclusions and Recommendations External Wall 4: Trespa Meteon

Table 57 External Wall 4 Summary of Benchmark Criteria Evaluations

Fire Performance: The risk of undue flame and smoke spread over the external wall	High
Façade Configuration: The risk of resultant occurrence and extent of secondary fires	High
Fire Strategy: The risk to person during an evacuation leading to untenable conditions such as compromised means of escape	High
Part of the Fire Strategy: The risk to occupants due to absence of intervention by the fire and rescue services prior to occurrence of the aforementioned events	Medium

Fire Engineers Comments

This construction consists of a HPL cladding panel exterior surface material, which is considered a moderate contributor to fire which is able to self-sustain fire growth or spread. It is likely to become involved in any substantial fire to which it is exposed, and ultimately to spread flame across all surfaces extending up and across from the point of ignition.

The wall contains Class F 20mm Bitvent impregnated insulation board. There is a cavity between the HPL cladding and the sheathing board. The provision of cavity barriers at compartment lines is not present.

Vents are not present on this wall type.

This wall type is used above the balcony approach on the top floor. A fire originating from a window could ignite the board. If involved in a fire, debris could obstruct the escape route for all occupants on that floor.

This type of construction is in relation to the benchmark criteria in table L.9 of the PAS 9980

In the event of a fire, fire spread is likely to be at a higher rate within expectations for a building of this height given the circumstances at the building in question; and/or

- Fire spread is unlikely to give rise to widespread secondary fires resulting in occupants being significantly harmed or prevented from escaping
- Fire is likely to spread in such a way that the communal means of escape will be compromised before occupants can safely use them to escape

Considering the above, the risk for this external wall construction is deemed to be **HIGH AND NOT TOLERABLE**.

Proposed Remedial Actions

Remove and replace all combustible materials in the wall type with materials that achieve Euroclass A2-s1, d0 or better. All combustible membranes must also be removed and replaced with membranes achieving a minimum of class B-s3, d0. Install cavity barriers at the relevant locations in conjunction with the current Building Regulations in Approved Document B.

Timescale for remediation work to commence

We recommend that the process of remediation should be started as soon as practicably reasonable of receipt of the FRAEW, PAS9980:2022 Report.

5.6 Conclusions and Recommendations External Wall 5: Curtain Walling

Table 58 External Wall 5 Summary of Benchmark Criteria Evaluations

Fire Performance: The risk of undue flame and smoke spread over the external wall	High
Façade Configuration: The risk of resultant occurrence and extent of secondary fires	High
Fire Strategy: The risk to person during an evacuation leading to untenable conditions such as compromised means of escape	High
Part of the Fire Strategy: The risk to occupants due to absence of intervention by the fire and rescue services prior to occurrence of the aforementioned events	Medium

Fire Engineers Comments

This spandrel panel construction consists of an MCM cladding panel with a 20mm extruded polystyrene insulated core, which is considered a high contributor to fire and able to self-sustain fire growth or spread. It is likely to become involved in any substantial fire to which it is exposed, and ultimately to spread flame across all surfaces extending up and across from the point of ignition.

The spandrel panel is located at the floor slab level in front of the floor slab. There is a gap between the floor slab and the panel which is not provided with a fire stop. A fire originating from the level below can ignite the board and result in vertical secondary fires.

Panels are also located above final exits, therefore debris also poses a risk.

Vents are not present on this wall type.

This type of construction is in relation to the benchmark criteria in table L.10 of the PAS 9980

In the event of a fire, fire spread is likely to be at a higher rate within expectations for a building of this height given the circumstances at the building in question; and/or

- Fire spread is likely to give rise to widespread secondary fires resulting in occupants being significantly harmed or prevented from escaping
- Fire is likely to spread in such a way that the communal means of escape will be compromised before occupants can safely use them to escape

Considering the above, the risk for this external wall construction is deemed to be **HIGH AND NOT TOLERABLE**.

Proposed Remedial Actions

Remove and replace all combustible spandrel panels in the wall type with materials that achieve Euroclass A2-s1, d0 or better. All combustible membranes must also be removed and replaced with membranes achieving a minimum of class B-s3, d0. Install fire stops at the relevant locations in conjunction with the current Building Regulations in Approved Document B. This is required in all locations where this wall type is present.

Timescale for remediation work to commence

We recommend that the process of remediation should be started as soon as practicably reasonable of receipt of the FRAEW, PAS9980:2022 Report.

5.7 Conclusions and Recommendations External Wall 6: Render

Table 59 External Wall 6 Summary of Benchmark Criteria Evaluations

Fire Performance: The risk of undue flame and smoke spread over the external wall	Medium
Façade Configuration: The risk of resultant occurrence and extent of secondary fires	Low
Fire Strategy: The risk to person during an evacuation leading to untenable conditions such as compromised means of escape	High
Part of the Fire Strategy: The risk to occupants due to absence of intervention by the fire and rescue services prior to occurrence of the aforementioned events	Medium

Fire Engineers Comments

This spandrel panel construction consists of render, which is considered a low contributor to fire and unable to self-sustain fire growth or spread.

The render is present only on three elevations of the lift shaft and is not connected to any apartment, so it cannot cause secondary fires. It is also positioned away from the escape route, so it does not pose a risk of obstructing evacuation.

Vents are not present on this wall type.

This type of construction is in relation to the benchmark criteria in table L.10 of the PAS 9980

In the event of a fire, fire spread is likely to be within expected rate for a building of this height given the circumstances at the building in question; and/or

- Fire spread is unlikely to give rise to widespread secondary fires resulting in occupants being significantly harmed or prevented from escaping
- Fire is unlikely to spread in such a way that the communal means of escape will be compromised before occupants can safely use them to escape

Considering the above, the risk for this external wall construction is deemed to be **LOW**.

Proposed Remedial Actions

Not required

5.8 Conclusions and Recommendations Attachment Type 1: Cantilever balcony

Table 60 Attachment Type 1-Summary of Benchmark Criteria Evaluations

Fire Performance: The risk of undue flame and smoke spread over the attachment	High
Façade Configuration: The risk of resultant occurrence and extent of secondary fires	High
Fire Strategy: The risk to person during an evacuation leading to untenable conditions such as compromised means of escape	Medium
Part of the Fire Strategy: The risk to occupants due to absence of intervention by the fire and rescue services prior to occurrence of the aforementioned events	High

Fire Engineers Comments

This construction consists of a steel frame structure, which is considered a Low contributor to fire which is unable to self-sustain fire growth or spread.

The only combustible materials identified within the construction of the cantilever balcony was the timber decking material. The timber has been considered to be natural and untreated and, although combustible, is used in construction with regards to its quality to provide good fire resistance. During a fire timber has a number of phase changes; this may vary on the timber species:

- At ambient temperature, the moisture content of typical softwoods is approximately 10-14% of its weight
- Gradual heating, this percentage changes dramatically as the timber temperature approaches 90-120°C. Most of the moisture evaporates from the heated surface
- Increasing heat energy, the timber locally dehydrates and begins to degrade
- At temperatures approaching 300°C timber starts to combust

This type of construction is in relation to the benchmark criteria in table L6 of the PAS 9980

In the event of a fire, fire spread is likely to be at a higher rate for a building of this height, given the circumstances at the building in question; and/or

- a) Fire spread is likely to give rise to widespread secondary fires resulting in occupants being significantly harmed or prevented from escaping
- b) Fire is likely to spread in such a way that the communal means of escape will be compromised before occupants can safely use them to escape

There is a significantly posed risk that in the event of an ignition to the timber decking material given their vertical stacked alignment that there is a posed mechanism for vertical fire spread and the ability for secondary fires.

Considering the above, the risk for this external wall construction is deemed to be **High**.

Proposed Remedial Actions

The following option is recommended:

The timber decking on all balconies is removed and replace with material that achieves Euro class A2-s1-d0 or better. The impact this will have on life safety is that there is a lower risk of vertical fire spread to effect secondary apartments and compromise the stay-put policy.

Timescale for remediation work to commence

We recommend that the process of remediation should be started as soon as practicably reasonable of receipt of the FRAEW, PAS9980:2022 Report.

5.9 Conclusions and Recommendations Attachment Type 2: Terrace Balconies

Table 61 Attachment Type 2-Summary of Benchmark Criteria Evaluations

Fire Performance: The risk of undue flame and smoke spread over attachment	Low
Façade Configuration: The risk of resultant occurrence and extent of secondary fires	Medium
Fire Strategy: The risk to person during an evacuation leading to untenable conditions such as compromised means of escape	Medium
Part of the Fire Strategy: The risk to occupants due to absence of intervention by the fire and rescue services prior to occurrence of the aforementioned events	High

Fire Engineers Comments

This construction consists of a masonry structure, which is considered a low contributor to fire which is unable to self-sustain fire growth or spread.

The only combustible materials identified in the construction were the timber cladding on the reverse side of the parapet and the timber board supporting the coping. These can ignite and result in lateral fire spread between neighbouring apartments. In some locations, the terraces are very small, so these could cause window breakage and secondary fires within the apartment.

This type of construction is in relation to the benchmark criteria in table L6 of the PAS 9980

In the event of a fire, fire spread is likely to be at a higher rate for a building of this height, given the circumstances at the building in question; and/or

- Fire spread is likely to give rise to secondary fires resulting in occupants being significantly harmed.
- Fire is unlikely to spread in such a way that the communal means of escape will be compromised before occupants can safely use them to escape

Considering the above, the risk for this external wall construction is deemed to be **High**.

Proposed Remedial Actions

As part of remediation work to Wall Types 1 and 3, the timber cladding and all other combustibles within the wall types shall be removed and replaced, this is sufficient to offset the risk associated with Attachment Type 2.

Timescale for remediation work to commence

We recommend that the process of remediation should be started as soon as practicably reasonable of receipt of the FRAEW, PAS9980:2022 Report.

5.10 Conclusions and Recommendations Attachment Type 3: Inset balcony

Table 62 Attachment Type 3-Summary of Benchmark Criteria Evaluations

Fire Performance: The risk of undue flame and smoke spread over the attachment	High
Façade Configuration: The risk of resultant occurrence and extent of secondary fires	High
Fire Strategy: The risk to person during an evacuation leading to untenable conditions such as compromised means of escape	Medium
Part of the Fire Strategy: The risk to occupants due to absence of intervention by the fire and rescue services prior to occurrence of the aforementioned events	High

Fire Engineers Comments

This construction consists of a steel frame structure, which is considered a Low contributor to fire which is unable to self-sustain fire growth or spread.

The only combustible materials identified within the construction of the inset balcony was the timber decking material. The timber has been considered to be natural and untreated and, although combustible, is used in construction with regards to its quality to provide good fire resistance. During a fire timber has a number of phase changes; this may vary on the timber species:

- At ambient temperature, the moisture content of typical softwoods is approximately 10-14% of its weight
- Gradual heating, this percentage changes dramatically as the timber temperature approaches 90-120°C. Most of the moisture evaporates from the heated surface
- Increasing heat energy, the timber locally dehydrates and begins to degrade
- At temperatures approaching 300°C timber starts to combust

This type of construction is in relation to the benchmark criteria in table L6 of the PAS 9980

In the event of a fire, fire spread is likely to be at a higher rate for a building of this height, given the circumstances at the building in question; and/or

- a) Fire spread is likely to give rise to widespread secondary fires resulting in occupants being significantly harmed or prevented from escaping
- b) Fire is likely to spread in such a way that the communal means of escape will be compromised before occupants can safely use them to escape

There is a significantly posed risk that in the event of an ignition to the timber decking material given their vertical stacked alignment that there is a posed mechanism for vertical fire spread and the ability for secondary fires.

Considering the above, the risk for this external wall construction is deemed to be High.

Proposed Remedial Actions

The following options should be implemented:

- The timber decking on all balconies is removed and replace with material that achieves Euro class A2-s1,d0 or better.
- The impact this will have on life safety is that there is a lower risk of vertical fire spread to effect secondary apartments and compromise the stay-put policy.

Timescale for remediation work to commence

We recommend that the process of remediation should be started as soon as practicably reasonable of receipt of the FRAEW, PAS9980:2022 Report.

5.11 Conclusions and Recommendations Attachment Type 4: Balcony Approach

Table 63 Attachment Type 4-Summary of Benchmark Criteria Evaluations

Fire Performance: The risk of undue flame and smoke spread over the attachment	High
Façade Configuration: The risk of resultant occurrence and extent of secondary fires	High
Fire Strategy: The risk to person during an evacuation leading to untenable conditions such as compromised means of escape	High
Part of the Fire Strategy: The risk to occupants due to absence of intervention by the fire and rescue services prior to occurrence of the aforementioned events	High

Fire Engineers Comments

This construction consists of a steel frame structure, which is considered a Low contributor to fire which is unable to self-sustain fire growth or spread.

The only combustible materials identified in the construction of the balcony approach were the plywood soffit and the framing system supporting the PVC and plywood soffits. The PVC itself is of limited combustibility. The plywood soffit, located above the storey exit, could be ignited by the adjacent timber cladding, potentially obstructing the escape route from that storey. The PVC did not span the entire area of the soffit therefore the framework could be ignited resulting in the failure of the soffit.

This type of construction is in relation to the benchmark criteria in table L6 of the PAS 9980

In the event of a fire, fire spread is likely to be within expected rates for a building of this height, given the circumstances at the building in question; and/or

- Fire spread is unlikely to give rise to widespread secondary fires resulting in occupants being significantly harmed or prevented from escaping
- Fire is likely to spread in such a way that the communal means of escape will be compromised before occupants can safely use them to escape

There is a significantly posed risk that in the event of an ignition to the timber decking material given their vertical stacked alignment that there is a posed mechanism for vertical fire spread and the ability for secondary fires.

Considering the above, the risk for this external wall construction is deemed to be **High**.

Proposed Remedial Actions

Remove and replace the combustibles at the soffit with materials of Euroclass A2-s1, d0 or better.

Timescale for remediation work to commence

We recommend that the process of remediation should be started as soon as practicably reasonable of receipt of the FRAEW, PAS9980:2022 Report.

5.12 Conclusions and Recommendations Attachment Type 5: Juliet balcony

Table 64 Attachment Type 5-Summary of Benchmark Criteria Evaluations

Fire Performance: The risk of undue flame and smoke spread over the attachment	Low
Façade Configuration: The risk of resultant occurrence and extent of secondary fires	Low
Fire Strategy: The risk to person during an evacuation leading to untenable conditions such as compromised means of escape	Medium
Part of the Fire Strategy: The risk to occupants due to absence of intervention by the fire and rescue services prior to occurrence of the aforementioned events	High

Fire Engineers Comments

This construction consists of steel only, which is considered a Low contributor to fire which is unable to self-sustain fire growth or spread.

There is no desking present.

This type of construction is in relation to the benchmark criteria in table L6 of the PAS 9980

In the event of a fire, fire spread is likely to be within the expected rate for a building of this height, given the circumstances at the building in question; and/or

- a) Fire spread is unlikely to give rise to widespread secondary fires resulting in occupants being significantly harmed or prevented from escaping
- b) Fire is unlikely to spread in such a way that the communal means of escape will be compromised before occupants can safely use them to escape

Considering the above, the risk for this external wall construction is deemed to be Low

Proposed Remedial Actions

N/A

6. Conclusion

6.1 Proposed Remedial Actions

Wall types 1, 2, 3, 4 and 5 cover large portions of the building and carry a high and intolerable risk, the rate of fire spread is expected to be higher than anticipated for a building of this height, given the circumstances and arrangement at the Linx Building. This rapid-fire spread is likely to cause widespread secondary fires, significantly harming occupants or preventing them from escaping. Therefore, the overall fire risk rating of the external wall is assessed as High.

Wall Types 1, 3, 4, and 5 Recommended Remediation: Remove and replace all combustible materials (including the sheathing board) in the wall type with materials that achieve Euroclass A2-s1, d0 or better. All combustible membranes must also be removed and replaced with membranes achieving a minimum of class B-s3, d0. Install cavity barriers at the relevant locations in conjunction with the current Building Regulations in Approved Document B. This is required in all locations where this wall type is present.

Wall Type 2A Recommended Remediation: Remove and replace all combustible materials in the wall type with materials that achieve Euroclass A2-s1, d0 or better. This also includes the sheathing board. All combustible membranes must also be removed and replaced with membranes achieving a minimum of class B-s3, d0. Install cavity barriers at the relevant locations in conjunction with the current Building Regulations in Approved Document B. This is required in all locations where this wall type is present.

Wall Type 2B Recommended Remediation: Remediation is not required.

Wall Type 6 Recommended Remediation: Remediation is not required.

Attachment Types 1 and 3 Recommended Remediation: The timber decking on all balconies is removed and replaced with material that achieves Euro class A2-s1, d0 or better. – The impact this will have on life safety is that there is a lower risk of vertical fire spread to effect secondary apartments and compromise the stay-put policy.

Attachment Type 2 Recommended Remediation: As part of remediation work to Wall Types 1 and 3, the timber cladding and all other combustibles within the wall types shall be removed and replaced, this is sufficient to offset the risk associated with Attachment Type 2.

Attachment Type 4 Recommended Remediation: As part of remediation work to Wall Types 1 and 3, the timber cladding and all other combustibles within the wall types shall be removed and replaced. In addition, replace the combustible soffit with materials of Euroclass A2-s1, d0 or better.

Attachment Type 5 Recommended Remediation: Remediation is not required.

We recommend that the process of remediation should be started as soon as practicably reasonable of receipt of the FRAEW, PAS9980:2022 Report.

6.2 Interim Measures

Temporary simultaneous evacuation following the National Fire Chiefs Council's Simultaneous Evacuation Guidance is required.

7. Limitations

This FRAEW seeks to assess the potential risk to human life posed by a fire and smoke spreading over and within the building's external walls, and to determine as to whether, in the specific circumstances of the building, remediation or other mitigation measures to address the risk are deemed necessary.

It is imperative to underscore that the FRAEW is based on relative risk assessments and consequently does not purport to ascertain the safety of the wall system. It relies upon the professional discretion and the application of the PAS Standard by the assessor.

This FRAEW does not encompass the performance of external walls in relation to fire resistance or the capability of the wall system to uphold structural stability and the containment of fire spreading from one building to another.

This FRAEW does not assume liability or responsibility for any opinions or judgments contained within. Without written confirmation from CHPK Fire Engineering, this report should not be considered as evidence in any arbitration, tribunal, or litigation.

CHPK Fire Engineering Ltd have not reviewed any other issues within the project other than those identified in our report. We offer no comment on the adequacy or otherwise of any other aspects of the development (whether related to fire safety or any other issue) and an absence of comment on such issues should not be regarded as any form of approval. The advice should not be used for buildings other than that named in the title.

Where more definitive information on fire performance data relied upon in a FRAEW becomes available, e.g., results from relevant BS 8414 tests completed subsequent to the FRAEW, it is expected that such information ought to take precedence. This might, in some cases, prompt the need for a review of the findings of a FRAEW.

This FRAEW is to be reviewed:

- a) If significant changes/repairs have been made to the external wall
- b) In the event of a fire incident, if the fire involved the external wall construction
- c) If there are any circumstances, depending upon the nature of the construction, the extent of available knowledge in relation to the particular materials, components and systems used on the building or the degree of uncertainty over the findings, that suggest review is appropriate.

References

1. British Standards Institution (2022). *PAS 9980:2022 Fire risk appraisal of external wall construction and cladding of existing blocks of flats - Code of practice.*
2. British Standards Institution (2022). *BS 9991:2015 Fire safety in the design, management, and use of residential buildings - Code of practice.*
3. HM Government (2022). *Approved Document B Volume 1: Dwellings.*
4. HM Government (2000 with 2002 amendments). *Approved Document B*
5. Simultaneous Evacuation Guidance, National Fire Chiefs Council. 4th Edition, 2022



Appendix A – Professional Indemnity Insurance Certificate



Our Ref 274861 / KSP / 0027936588

Ref P23A274861P

TO WHOM IT MAY CONCERN VERIFICATION OF PROFESSIONAL INDEMNITY INSURANCE

We, the undersigned Insurance Broker, hereby certify that the following described insurance is in force at this date:

Name and principal address of Insured:	CHPK Fire Engineering Ltd 53 New Broad Street London EC2M1JJ
Business:	Fire Engineering
Period of Insurance:	From: 24 September 2023 To: 23 September 2024 (both days inclusive at the address stated above)
Limit of Indemnity:	GBP 10,000,000 in the aggregate plus two round the clock reinstatements
Insurers:	Dual Corporate Risks Limited; XS Assure on behalf of NPA Insurance Ltd; International General Insurance Company (UK) Limited and Volante Global
Primary Policy number:	P23A274861P

The policy is subject to the insuring agreements, sub-limits, exclusions, conditions and declarations contained therein. The above is accurate at the date of signature.

This document is furnished to you as a matter of information only and is valid at today's date. The issuance of this document does not make the person or organisation to whom it is issued an additional Insured, nor does it modify in any manner the contracts of insurance between the Insured and Insurers. Any amendment, change or extension of such contracts can only be effected by specific endorsement thereto.

Should the above-mentioned contract of insurance be cancelled, assigned or changed during the above policy period in such manner as to affect this document, no obligation to inform the holder of this document is accepted by the undersigned or by Insurers.

Signed:..... 

Signed on behalf of Howden

Dated: 27 September 2023



Appendix B -Post Site Inspection Report August 2024

Post Site Inspection Report Findings

Project Name	FE02072 - Compton Property Mgmt Ltd - Linx Building, 10 Naples Street & 25 Simpson Street, Manchester, M4 4AS (EWS)	Client	Compton Property Management Ltd
Project	FE02072	For the Attention Of	--
Date	30th August 2024	Revision	00

Issue Record					
Revision	Date	Prepared By	Reviewed By	Approved By	Description
00	30/08/2024	Adeel Idrees	Mai Jiangiang	Mai Jiangiang	Initial issue



1. Introduction

CHPK Fire Engineering Ltd have been commissioned by Compton Property Management Ltd to carry out a fire risk appraisal of the external wall and attachments for The Linx Building - 25 Simpson Street, Manchester, M4 4AS. As part of the process, CHPKFE witnessed the intrusive inspection of the building. The intrusive investigations were carried out on 12th, 15th & 16th August 2024. Adeel Idrees of CHPKFE attended the site inspection.

This document reports the findings and observations of the CHPKFE engineer. Where the CHPKFE engineer felt safe and comfortable, the engineer inspected the opening and took the photos. Otherwise, the inspection was relied on communication with the contractor and the photos were taken by the contractor. This report includes both the direct and indirect inspection.

Figure 1 displays The Linx Building. The Linx is a residential development in Manchester, consisting of a single block. The building has seven storeys (G + 6) and stands approximately 21 meters tall, measured from the ground floor at the lowest elevation to the finished floor level of the highest occupied floor. Additionally, the property includes a basement level with car parking and a central courtyard at ground floor level. The building is served by two internal stair cores, located on the southeast and northwest sides, with all flats accessed via a balcony approach.



Figure 10 The Linx Building

2. Identified Wall Types & Attachments

The external wall types and attachments identified during the intrusive site inspection are as follows:

External Wall Types:

1. External Wall 1: Vertical Cedar Wood Cladding
2. External Wall 2: Masonry with Aluminium frame inner leaf
3. External Wall 3: Horizontal Cedar Wood Cladding
4. External Wall 4: Trespa Meteon
5. External Wall 5: Curtain Walling
6. External Wall 6: Render

Attachment Types:

1. Attachment Type 1: Cantilever Balconies
2. Attachment Type 2: Terrace Balconies
3. Attachment Type 3: Inset Balconies
4. Attachment Type 4: Balcony Approach
5. Attachment Type 4: Juliet balconies

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3. Inspection Scope

This section highlights the inspection scope. This scope was forwarded to the contractor before the investigations.



Figure 11 Inspection locations L1 to L6

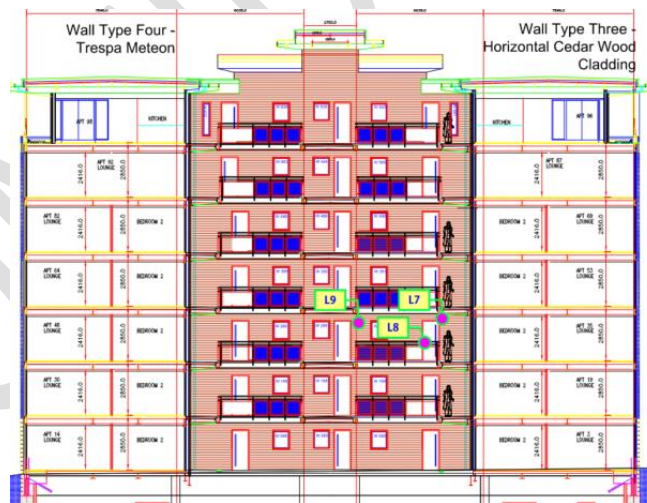


Figure 12 Inspection locations L7 to L9



Figure 13 Inspection locations L10 to L19



Figure 14 Inspection location L20

Table 65 Schedule of Opening Locations

SCHEDULE OF OPENING LOCATIONS:		
SN	Purpose of opening	Notes
L1	Wall buildup and cavity barriers around window jamb/head.	We need to investigate beyond the sheathing board and into the SFS zone.
L2	Wall buildup and cavity barriers around window jamb/head.	We need to investigate beyond the sheathing board and into the SFS zone.
L3	Wall buildup and cavity barriers around window jamb/Cill.	We need to investigate beyond the sheathing board and into the SFS zone.
L4	Cavity barriers at compartments line (Vertical)	We need to investigate beyond the sheathing board and into the SFS zone.
L5	Cavity barriers at compartments line (Vertical)	
L6	Cavity barriers at compartments line (Vertical)	
L7	Wall buildup and cavity barriers around window jamb/head.	We need to investigate beyond the sheathing board and into the SFS zone
L8	Wall buildup and cavity barriers around window jamb/Cill.	We need to investigate beyond the sheathing board and into the SFS zone.
L9	Cavity barriers at compartments line (Vertical)	We need to investigate beyond the sheathing board and into the SFS zone.
L10	Wall buildup and cavity barriers around window jamb/Cill.	
L11	Wall buildup and cavity barriers around window jamb/head.	
L12	Cavity barriers at compartments lines (Vertical & Horizontal)	
L13	Cavity barriers at compartments lines (Vertical & Horizontal)	
L14	Check the spandrel zone of the curtain walling: -Spandrel panel wall buildup -Glazing area build up. -Perimeter fire stooping (Edge of floor slab)	

	-Cavity barriers within spandrel cavity if any.	
L15	Wall buildup and Cavity barriers at compartments lines (Vertical & Horizontal)	We need to investigate beyond the sheathing board and into the SFS zone.
L16	Wall buildup and cavity barriers around window jamb/head.	We need to investigate beyond the sheathing board and into the SFS zone.
L17	Wall buildup and cavity barriers around window jamb/Cill.	We need to investigate beyond the sheathing board and into the SFS zone.
L18	Top of Parapet wall /cavity closure.	We need to investigate beyond the sheathing board and into the SFS zone.
L19	Wall buildup	We need to investigate beyond the sheathing board and into the SFS zone. We also need to determine the location and extent of this wall type on the building.
L20	Check the spandrel zone of the curtain walling: -Spandrel panel wall buildup -Glazing area build up. -Perimeter fire stooping (Edge of floor slab) -Cavity barriers within spandrel cavity if any.	
L21	Balcony decking/buildup (Courtyard balconies)	This could be at any location within the courtyard from 1 st floor and above.
L22	Balcony soffit build-up (Courtyard balconies)	This could be at any location within the courtyard from 1 st floor and above.
L23	Balcony decking/buildup (External balconies)	This could be at any location within the external elevations from 1 st floor and above.
L24	Balcony soffit build-up (External balconies)	This could be at any location within the external elevations from 1 st floor and above

4. Investigation Findings

4.1 Location: L1

Location: Courtyard Elevation

Location Intention: To observe wall build-up and cavity barriers around window jamb/head.

Wall Type: External Wall 1 (Vertical Cedar Wood Cladding)

Floor: First

Table 66 Inspection Location: L1

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	20mm Vertical Cedar Wood Cladding panel	A1	D	
Cavity	65mm Cavity present due to cladding framing system	B1	N/A	
Breather membrane	Kloeber membrane	B1	F	
Sheathing Board	10mm Cement Particle board	C1	B	
Insulation	18mm PIR Insulation The PIR insulation was fixed to the sheathing board.	D1	F	
Insulation	100mm Mineral wool insulation	D1	A1	
Inner leaf	Foil backed plasterboard	E1	A2-s1, d0	
Cavity Barrier: At head of the window	20mm Timber batten	F1	N/A	
Cavity Barrier: At jamb of the window	30mm Timber batten was present between the sheathing board and the timber cladding. This did not close the cavity properly. The metal element of the framing system to which the sheathing board and plasterboard are attached closes the jamb.	G1	N/A	
Cavity Barrier: At cill of the window	Aluminium window frame closed the cill of the window	H1	N/A	

Further Comments

Timber cladding panels around and above the window were removed and a multitool was used to penetrate the sheathing board. This allowed every element of the wall build up in a sectional view to allow analysis of the systems and workmanship.

The cladding was fixed to a timber framing system attached to the sheathing board.

The sheathing board, with the attached PIR insulation, and the plasterboard, was secured to a metal framing system, and the void was filled with mineral insulation.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings



Aluminium framed windows were present. The specific system is unknown to CHPKFE.

A1



B1



C1



D1



E1



F1



G1



H1



4.2 Location: L2

Location: Courtyard Elevation

Location Intention: To observe wall build-up and cavity barriers around window jamb/head.

Wall Type: External Wall 1 (Vertical Cedar Wood Cladding)

Floor: Third

Table 67 Inspection Location: L2

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	20mm Vertical Cedar Wood Cladding panel	A2	D	
Cavity	65mm Cavity present due to cladding framing system	B2	N/A	
Breather membrane	Tyvek membrane	C2	E	
Sheathing Board	10mm Cement particle board	C2	B	
Insulation	18mm PIR Insulation The PIR insulation was fixed to the sheathing board.	D2	F	
Insulation	100mm Mineral wool insulation	D2	A1	
Inner leaf	Foil backed plasterboard	E2	A2-s1, d0	
Cavity Barrier: At head of the window	20mm Timber batten fully closed the cavity between the sheathing board and the timber cladding. The timber batten was removed from its location.	F2	N/A	
Cavity Barrier: At jamb of the window	30mm Timber batten was present between the sheathing board and the timber cladding. This did not close the cavity fully. The metal element of the framing system to which the sheathing board and plasterboard are attached closes the jamb.	G2 & H2	N/A	
Cavity Barrier: At cill of the window	Aluminium window frame closed the cill of the window	G2	N/A	

Further Comments

Timber cladding panels around and above the window were removed and a multitool was used to penetrate the sheathing board. This allowed every element of the wall build up in a sectional view to allow analysis of the systems and workmanship.

The cladding was fixed to a timber framing system attached to the sheathing board.

The sheathing board, with the attached PIR insulation, and the plasterboard, was secured to a metal framing system, and the void was filled with mineral insulation.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings

Aluminium framed windows were present. The specific system is unknown to CHPKFE.

A2



B2



C2



D2



E2



F2



G2



H2



CONFIDENTIAL

4.3 Location: L3

Location: Courtyard Elevation

Location Intention: To observe wall build-up and cavity barriers around window jamb/cill.

Wall Type: External Wall 1 (Vertical Cedar Wood Cladding)

Floor: Third

Table 68 Inspection Location: L3

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	20mm Vertical Cedar Wood Cladding panel	A3	D	
Cavity	65mm Cavity present due to cladding framing system	B3	N/A	
Breather membrane	Tyvek membrane	B3	E	
Sheathing Board	10mm Cement particle board	C3	B	
Insulation	18mm PIR Insulation The PIR insulation was fixed to the sheathing board.	C3	F	
Insulation	100mm Mineral wool insulation	D3	A1	
Inner leaf	Foil backed plasterboard	E3	A2-s1, d0	
Cavity Barrier: At cill of the window	Aluminium window frame closed the cill of the window	F3	N/A	
Cavity Barrier: At jamb of the window	30mm Timber batten was present between the sheathing board and the timber cladding. This did not close the cavity fully. The metal element of the framing system to which the sheathing board and plasterboard are attached closes the jamb.	G3 & H3	N/A	

Further Comments

Timber cladding panels around and above the window were removed and a multitool was used to penetrate the sheathing board. This allowed every element of the wall build up in a sectional view to allow analysis of the systems and workmanship.

The cladding was fixed to a timber framing system attached to the sheathing board.

The sheathing board, with the attached PIR insulation, and the plasterboard, was secured to a l framing system, and the void was filled with mineral insulation.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings

Aluminium framed windows were present. The specific system is unknown to CHPKFE.

A3



B3



C3



D3



E3



F3



G3



H3



4.4 Location: L4

Location: Courtyard Elevation

Location Intention: To observe cavity barrier at the party wall

Wall Type: External Wall 1 (Vertical Cedar Wood Cladding)

Floor: Third

Table 69 Inspection Location: L4

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	20mm Vertical Cedar Wood Cladding panel	A4	D	
Cavity	65mm Cavity present due to cladding framing system	B4	N/A	
Breather membrane	Tyvek membrane	B4	E	
Sheathing Board	10mm Cement particle board	C4	B	
Insulation	18mm PIR Insulation The PIR insulation was fixed to the sheathing board.	C4	F	
Cavity	30mm	C4	N/A	
Inner leaf	Assumed Fermacell Plasterboard	D4	A2-s1, d0	
Cavity Barrier: At party wall	Cavity barrier not present. The timber batten from the timber frame used for cladding installation did not serve as a cavity barrier, as it did not close off the cavity.	B4 & E4	N/A	

Further Comments

Timber cladding panels around and above the window were removed and a multitool was used to penetrate the sheathing board. This allowed every element of the wall build up in a sectional view to allow analysis of the systems and workmanship.

The cladding was fixed to a timber framing system attached to the sheathing board.

The sheathing board, with the attached PIR insulation, and the Fermacell plasterboard, was secured to a framing system.

It should be noted that findings in Table 69 are descriptions of the party wall detail as opposed to a general wall build up.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings

Aluminium framed windows were present. The specific system is unknown to CHPKFE.

A4



B4



C4



D4



E4



4.5 Location: L5

Location: Courtyard Elevation

Location Intention: To observe cavity barrier at the party wall

Wall Type: External Wall 1 (Vertical Cedar Wood Cladding)

Floor: Fourth

Table 70 Inspection Location: L5

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	20mm Vertical Cedar Wood Cladding panel	A5	D	
Cavity	65mm Cavity present due to cladding framing system	B5	N/A	
Breather membrane	Tyvek membrane	B5	E	
Sheathing Board	10mm Cement particle board	C5	B	
Insulation	18mm PIR Insulation The PIR insulation was fixed to the sheathing board.	D5	F	
Cavity	30mm	E5	N/A	
Inner leaf	Assumed Fermacell Plasterboard	E5	A2-s1, d0	
Cavity Barrier: At party wall	A green cavity stop sock was observed between the sheathing board and the timber cladding. The cavity between the Fermacell plasterboard and the sheathing board was not closed.	B5, E5 & G5	N/A	

Further Comments

Timber cladding panels around and above the window were removed and a multitool was used to penetrate the sheathing board. This allowed every element of the wall build up in a sectional view to allow analysis of the systems and workmanship.

The cladding was fixed to a timber framing system attached to the sheathing board.

The sheathing board, with the attached PIR insulation, and the Fermacell plasterboard, was secured to a framing system

It should be noted that findings in Table 70 are descriptions of the party wall detail as opposed to a general wall build up.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings

Aluminium framed windows were present. The specific system is unknown to CHPKFE.

A5



B5



C5



D5



E5



G5



4.6 Location: L6

Location: Courtyard Elevation

Location Intention: To observe cavity barrier at the party wall

Wall Type: External Wall 1 (Vertical Cedar Wood Cladding)

Floor: Fourth

Table 71 Inspection Location: L6

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	20mm Vertical Cedar Wood Cladding panel	A6	D	
Cavity	65mm Cavity present due to cladding framing system	B6	N/A	
Breather membrane	Tyvek membrane	B6	E	
Sheathing Board	10mm Cement particle board	C6	B	
Insulation	18mm PIR Insulation The PIR insulation was fixed to the sheathing board.	C6	F	
Insulation	100mm mineral wool insulation	D6	A1	
Inner leaf	Foil backed plasterboard	E6	A2-s1, d0	
Cavity Barrier: At party wall	A red cavity stop sock was observed between the sheathing board and the timber cladding.	B6 & G5	N/A	

Further Comments

Timber cladding panels around and above the window were removed and a multitool was used to penetrate the sheathing board. This allowed every element of the wall build up in a sectional view to allow analysis of the systems and workmanship.

The cladding was fixed to a timber framing system attached to the sheathing board.

The sheathing board, with the attached PIR insulation, and the plasterboard, was secured to a framing system and the void was filled with mineral wool insulation.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings

Aluminium framed windows were present. The specific system is unknown to CHPKFE.

A6



B6



C6



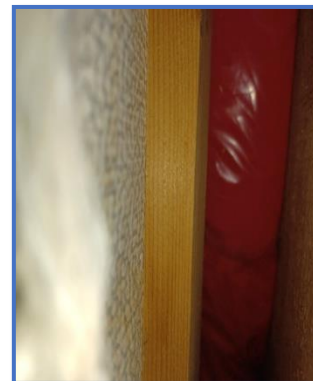
D6



E6



G6



4.7 Location: L7

Location: Courtyard Elevation

Location Intention: To observe the cavity barrier at the door head and jamb as well as the overall wall build up.

Wall Type: External Wall 3 (Horizontal Cedar Wood Cladding)

Floor: Second

Table 72 Inspection Location: L7

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	20mm Horizontal Cedar Wood Cladding panel	A7	D	
Cavity	40mm Cavity present due to cladding framing system	B7	N/A	
Breather membrane	Tyvek membrane	B7	E	
Sheathing Board	10mm Cement particle board	C7	B	
Insulation	18mm PIR Insulation The PIR insulation was fixed to the sheathing board.	C7	F	
Insulation	100mm mineral wool insulation	C7	A1	
Inner leaf	Foil backed plasterboard	C7	A2-s1, d0	
Cavity Barrier: At door jamb	The door opening is closed by the 60mm white timber door frame. The void between the sheathing board and the plasterboard is closed by the metal framing system.	C7 & D7	N/A	
Cavity Barrier: At door head	The door opening is closed by the 60mm white timber door frame.	E7	N/A	

Further Comments

Timber cladding panels around and above the window were removed and a multitool was used to penetrate the sheathing board. This allowed every element of the wall build up in a sectional view to allow analysis of the systems and workmanship.

The cladding was fixed to a timber framing system attached to the sheathing board.

The sheathing board, with the attached PIR insulation, and the plasterboard, was secured to a framing system and the void was filled with mineral wool insulation.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings

A timber framed door system was present. The specific system is unknown to CHPKFE.

A7



B7



C7



D7



E7



4.8 Location: L8

Location: Courtyard Elevation

Location Intention: To observe the cavity barrier at door jamb as well as overall wall build up.

Wall Type: External Wall 3 (Horizontal Cedar Wood Cladding)

Floor: Second

Table 73 Inspection Location: L8

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	20mm Horizontal Cedar Wood Cladding panel	A8	D	
Cavity	40mm Cavity present due to cladding framing system	B8	N/A	
Breather membrane	Tyvek membrane	B8	E	
Sheathing Board	10mm Cement particle board	C8	B	
Insulation	18mm PIR Insulation The PIR insulation was fixed to the sheathing board.	C8	F	
Insulation	100mm mineral wool insulation	A8	A1	
Inner leaf	Foil backed plasterboard	C8	A2-s1, d0	
Cavity Barrier: At door jamb	The door opening is closed by the 60mm white timber door frame. The void between the sheathing board and the plasterboard is closed by the metal framing system.	B8 & E8	N/A	

Further Comments

Timber cladding panels around and above the window were removed and a multitool was used to penetrate the sheathing board. This allowed every element of the wall build up in a sectional view to allow analysis of the systems and workmanship.

The cladding was fixed to a timber framing system attached to the sheathing board.

The sheathing board, with the attached PIR insulation, and the plasterboard, was secured to a metal framing system and the void was filled with mineral wool insulation.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings

A timber framed door system was present. The specific system is unknown to CHPKFE.

A8



B8



C8



D8



E8



4.9 Location: L9

Location: Courtyard Elevation

Location Intention: To observe cavity barrier at the compartment wall between the stair well and an apartment.

Wall Type: External Wall 3 (Horizontal Cedar Wood Cladding)

Floor: Second

Table 74 Inspection Location: L9

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	20mm Horizontal Cedar Wood Cladding panel	A9	D	
Cavity	50mm Cavity present due to cladding framing system	B9	N/A	
Breather membrane	Tyvek membrane	B9	E	
Sheathing Board	10mm Cement particle board	C9	B	
Insulation	18mm PIR Insulation The PIR insulation was fixed to the sheathing board.	D9	F	
Insulation	100mm mineral wool insulation	E9	A1	
Inner leaf	Foil-backed plasterboard	D8	A2-s1, d0	
Cavity Barrier: At compartment wall	A cavity barrier was not observed between the sheathing board and the timber cladding.	A9	N/A	

Further Comments

Timber cladding panels around and above the window were removed and a multitool was used to penetrate the sheathing board. This allowed every element of the wall build up in a sectional view to allow analysis of the systems and workmanship.

The cladding was fixed to a timber framing system attached to the sheathing board.

The sheathing board, with the attached PIR insulation, and the plasterboard, was secured to a metal framing system and the void was filled with mineral wool insulation.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings

A timber framed door system as well as aluminium framed windows were present. The specific systems are unknown to CHPKFE.

A9



B9



C9



D9



E9



4.10 Location: L10

Location: Angel Street Elevation

Location Intention: To observe the cavity barrier at the window head and jamb as well as confirm the wall build up.

Wall Type: External Wall 2 (Masonry with Aluminium frame inner leaf)

Floor: First

Table 75 Inspection Location: L10

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	90mm Brick	A10	A1	
Cavity	50mm Cavity present due to cladding framing system	B10	N/A	
Breather membrane	Tyvek membrane	B10	E	
Sheathing Board	20mm Bitroc sheathing board	B10 & C10	E	
Insulation	110mm mineral wool insulation	D10	A1	
Inner leaf	Foil-backed plasterboard	D10	A2-s1, d0	
Cavity Barrier: At window cill	Not present. Only the window frame was observed.	E10	N/A	
Cavity Barrier: At window jamb	Not present. Only the window frame was observed.	F10	N/A	

Further Comments

Two bricks were removed and a multitool was used to penetrate the sheathing board. This allowed every element of the wall build up in a sectional view to allow analysis of the systems and workmanship.

The sheathing board and the plasterboard, was secured to a metal framing system and the void was filled with mineral wool insulation.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings

Aluminium framed windows were present. The specific system is unknown to CHPKFE.

A10



B10



C10



D10



E10



F10



4.11 Location: L11

Location: Angel Street Elevation

Location Intention: To observe the cavity barrier at the window head and jamb as well as confirm the wall build up

Wall Type: External Wall 2 (Masonry with Aluminium frame inner leaf)

Floor: First

Table 76 Inspection Location: L11

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	90mm Brick	A11	A1	
Cavity	50mm Cavity present due to cladding framing system	B11	N/A	
Breather membrane	Tyvek membrane	B11	E	
Sheathing Board	20mm Bitroc sheathing board	C11 & D11	E	
Insulation	110mm mineral wool insulation	D11	A1	
Inner leaf	Foil-backed plasterboard	D11	A2-s1, d0	
Cavity Barrier: At window jamb	A cavity barrier is present in the form of a green stop sock.	B11	N/A	
Cavity Barrier: At window head	A cavity barrier is present in the form of a green stop sock.	E11	N/A	

Further Comments

Two bricks were removed and a multitool was used to penetrate the sheathing board. One at the head the other at the jamb. This allowed every element of the wall build up in a sectional view to allow analysis of the systems and workmanship.

The sheathing board and the plasterboard, was secured to a metal framing system and the void was filled with mineral wool insulation.

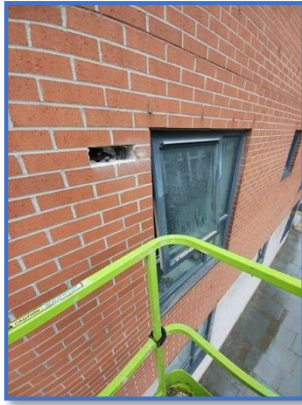
Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings

Aluminium framed windows were present. The specific system is unknown to CHPKFE.

A11



B11



C11



D11



E11



4.12 Location: L12

Location: Angel Street Elevation

Location Intention: To observe cavity barrier at floor slab and part wall lines.

Wall Type: External Wall 2 (Masonry with Aluminium frame inner leaf)

Floor: First

Table 77 Inspection Location: L12

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	90mm Brick	A12	A1	
Cavity	50mm Cavity present due to cladding framing system	B12	N/A	
Breather membrane	Tyvek membrane	C12	E	
Sheathing Board	20mm Bitroc sheathing board	C12	E	
Structural element	Steel element	C12	A1	
Cavity Barrier: At party wall	Present in the form of a green stop sock between the brick and the sheathing board. It should be noted that the vertical did not extend the full vertical length of the building, as it stopped at the floor slab level, which was not provided with a horizontal cavity barrier.	B12 & C12	N/A	
Cavity Barrier: At floor slab level	Not present.	D12	N/A	

Further Comments

Two bricks were removed and a multitool was used to penetrate the sheathing board. One at floor slab level and the other above the floor slab to inspect the party wall.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings

Aluminium framed windows were present. The specific system is unknown to CHPKFE.

A12



B12



C12



D12



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4.13 Location: L13

Location: Angel Street Elevation

Location Intention: To observe cavity barrier at floor slab and part wall lines.

Wall Type: External Wall 2 (Masonry with Aluminium frame inner leaf)

Floor: Second

Table 78 Inspection Location: L13

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	90mm Brick	A13	A1	
Cavity	50mm Cavity present At this location, the cavity was heavily obstructed by a buildup of debris and cement overflow that had seeped from between the bricks.	B13	N/A	
Breather membrane	Grey membrane	C13	E	
Structural element	Steel element	C13	A1	
Cavity Barrier: At party wall	Present in the form of a green stop sock between the brick and the sheathing board. The sheathing board was not visible here.	A13	N/A	
Cavity Barrier: At floor slab level	Present in the form of a green stop sock between the brick and the sheathing board.	D13	N/A	

Further Comments

Two bricks were removed and a multitool was used to penetrate the sheathing board. One at floor slab level and the other above the floor slab to inspect the party wall.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

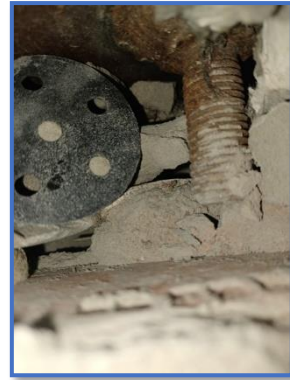
Aperture Openings

Aluminium framed windows were present. The specific system is unknown to CHPKFE.

A13



B13



C13



D13



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4.14 Location: L14

Location: Angel Street Elevation

Location Intention: To observe the fire stop at the floor slab.

Wall Type: External Wall 5 (Curtain Walling)

Floor: Second

Table 79 Inspection Location: L14

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	Metal sandwich panel 2mm metal panel 20mm extruded polystyrene insulation 2mm metal panel	A14	F	
Cavity	20mm Cavity present	B14	N/A	
Structural element	Steel element	B14	A1	
Firestop: At floor slab level	Not present	A14 to D14	N/A	

Further Comments

A core drill was used to penetrate the wall. This allowed every element of the wall build up in a sectional view and analyse the systems and workmanship.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings

Aluminium framed windows were present. The specific system is unknown to CHPKFE.

A14



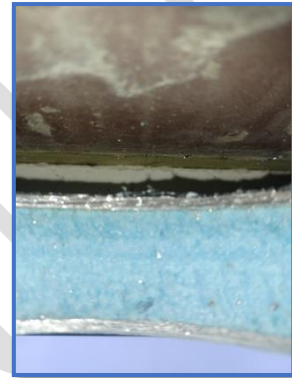
B14



C14



D14



CONFIDENTIAL

4.15 Location: L15

Location: Angel Street Elevation

Location Intention: To observe the cavity barrier at the part wall.

Wall Type: External Wall 3 (Horizontal Cedar Wood Cladding)

Floor: fifth

This location was not inspected due to safety concerns. The small size of the balcony made it unsafe to mount a ladder for access. As a result, a physical inspection could not be conducted. For further context, please refer to photo reference A15, which clearly shows the limited dimensions of the balcony, highlighting the challenges and risks associated with attempting to carry out an inspection in such a limited space. The cherry picker could also not access the location.

A15



CONFIDENTIAL

4.16 Location: L16

This location was changed due to access issues as per Figure 15 . Only the location was adjusted; the intent remains the same.

Location: Angel Street Elevation

Location Intention: To confirm wall build-up and cavity barriers around the door jamb/head.

Wall Type: External Wall 3 (Horizontal Cedar Wood Cladding)

Floor: sixth



Figure 15 L16 location change

Table 80 Inspection Location: L16

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	20mm Timber Cladding panel	A16	D	
Cavity	50mm Cavity present due to cladding framing system	B16	N/A	
Breather membrane	Tyvek membrane	B16	E	
Sheathing Board	10mm Cement particle board	B16	B	
Insulation	20mm PIR Insulation The PIR insulation was fixed to the sheathing board.	B16	F	
Insulation	100mm mineral wool insulation	B16	A1	
Inner leaf	Foil backed plasterboard	B16	A2-s1, d0	
Cavity Barrier: At door jamb	A 45mm timber batten is present. This closes the majority of the cavity, leaving only a small gap of approximately 5mm between the batten and the sheathing board. Tactile investigation confirmed that metal component of the Metal Framing System frame closed the void between the	C16	N/A	

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
	plasterboard and the sheathing board.			
Cavity Barrier: At door head	A 20mm timber batten at the head of the door is observed.	C16	N/A	

Further Comments

Cladding panels at the door jamb and head were removed and a multitool was used to penetrate the sheathing board. This allowed every element of the wall build up in a sectional view, which allowed analysis of the systems and workmanship.

The cladding was fixed to a timber framing system attached to the sheathing board.

The sheathing board, with the attached PIR insulation, and the plasterboard, was secured to a metal framing system and the void was filled with mineral wool insulation.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings

Wood effect PVC framed windows were present. The specific system is unknown to CHPKFE.

A16



B16



C16



D16



4.17 Location: L17

Location: Angel Street Elevation

Location Intention: To confirm wall build-up and cavity barriers around the door cill and jamb.

Wall Type: External Wall 3 (Horizontal Cedar Wood Cladding)

Floor: Fifth

Table 81 Inspection Location: L17

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	20mm Timber Cladding panel	A17	D	
Cavity	50mm Cavity present due to cladding framing system	B17	N/A	
Breather membrane	Tyvek membrane	B17	E	
Sheathing Board	10mm Cement particle board	B17	B	
Insulation	20mm PIR Insulation The PIR insulation was fixed to the sheathing board.	B17	F	
Insulation	100mm mineral wool insulation	C17	A1	
Inner leaf	Foil backed plasterboard	C17	A2-s1, d0	
Cavity Barrier: At window jamb	A 45mm timber batten is present. This closes the majority of the cavity, leaving only a small gap of approximately 5mm between the batten and the sheathing board. The metal component of the metal framing system frame closed the void between the plasterboard and the sheathing board.	C17& D17	N/A	
Cavity Barrier: At window head	Cavity barrier not observed. Window cill closes the cavity.	E17	N/A	

Further Comments

Cladding panels at the door jamb and head were removed and a multitool was used to penetrate the sheathing board. This allowed every element of the wall build up in a sectional view, which allowed analysis of the systems and workmanship.

The cladding was fixed to a timber framing system attached to the sheathing board.

The sheathing board, with the attached PIR insulation, and the plasterboard, was secured to a metal framing system and the void was filled with mineral wool insulation.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings

Wood effect PVC framed windows were present. The specific system is unknown to CHPKFE.

A17



B17



C17



D17



E17



4.18 Location: L18

This location was changed due to access issues as per Figure 16. Only the location was adjusted; the intent remains the same.

Location: Simpson Street Elevation

Location Intention: Investigate the top of the parapet wall and cavity closure.

Wall Type: External Wall 2 (Masonry with Aluminium frame inner leaf)

Floor: sixth



Figure 16 L18 location change

Table 82 Inspection Location: L18

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
Cavity Barrier: Cavity closer	The cavity was closed by a metal coping and a 20mm timber board. Within the void, a further metal element was observed closing the parapet void.	A18, B18 and D18	N/A	
Top of Parapet wall	At the top of the parapet wall, several steel elements were observed, which are likely structural. The external surface is brickwork, while the internal balcony surface features timber cladding	C18	N/A	

Further Comments

The metal coping was removed and a multitool was used to penetrate the timber board.

Penetrations

N/A

Aperture Openings

N/A

A18



B18



C18



D18



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4.19 Location: L19

This location was changed due to access issues as per Figure 17. Only the location was adjusted; the intent remains the same.

Location: Courtyard Elevation

Location Intention: Investigate the build-up and confirm extent of the wall type.

Wall Type: External Wall 4 (Trespa Meteon)

Floor: Fourth

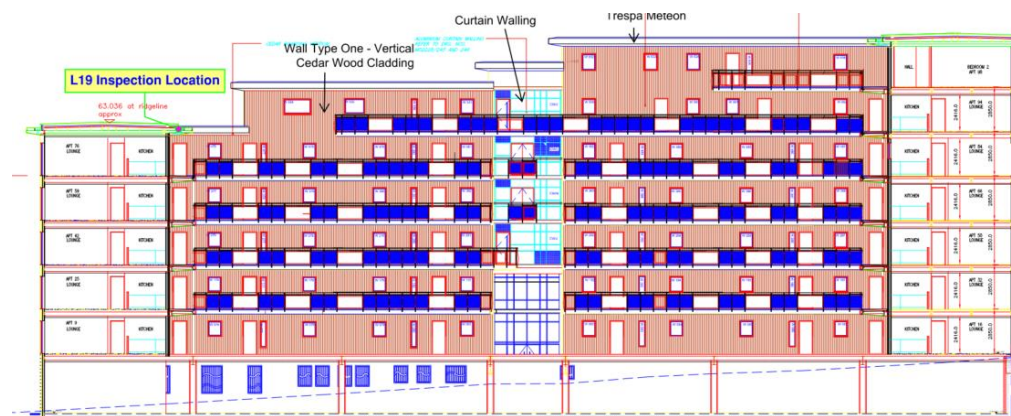


Figure 17 L19 location change

Table 83 Inspection Location: L19

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	10mm Trespa cladding panel	A19 & B19	D	
Structural element	The Trespa cladding appears to be decorative, primarily used to cover the steel structural element behind it. No other components were observed behind the cladding at this location.	C19	N/A	

Further Comments

The extent of this wall type was confined to the uppermost part of the building, typically spanning the roof soffit overhang. Its primary function appears to be decorative however, there is one specific location where this wall type is used more functionally as a standard wall. This occurs on the Naples Street elevation, specifically on the fifth floor. This particular application of the wall type can be observed in photo reference D19.

Penetrations

N/A

Aperture Openings

N/A

A19



B19



C19



D19



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4.20 Location: L20

Location: Napels Street Elevation

Location Intention: To observe the fire stop at the floor slab.

Wall Type: External Wall 5 (Curtain Walling)

Floor: Second

Table 84 Inspection Location: L20

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
External Façade System	Metal sandwich panel 2mm metal panel 20mm extruded polystyrene insulation 2mm metal panel	A20	F	
Cavity	20mm Cavity present	B20	N/A	
Structural element	Steel element	B20	N/A	
Firestop: At floor slab level	Not present. It should be noted that this location was on a stair core, hence fire stops are not required in this location.	A20 & B20	N/A	

Further Comments

A core drill was used to penetrate the wall. This allowed every element of the wall build up in a sectional view, which allowed analysis of the systems and workmanship.

Penetrations

Assessing the penetrations within this wall type was not the purpose of this inspection location.

Aperture Openings

Aluminium framed windows were present. The specific system is unknown to CHPKFE.

A20



B20



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4.21 Location: L21

Location: Courtyard Elevation

Location Intention: To confirm the balcony approach build up

Attachment Type: Attachment Type 4 (Balcony Approach)

Floor: third

Table 85 Inspection Location: L21

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
Soffit	3mm PVC panel This was fixed to the steel balcony structure via timber framing.	A21	B	
Cavity	175 mm Cavity present	B21	N/A	
Floor shuttering	Assumed 5mm steel	C21	A1	
Surface finish	125mm Concrete	D21	A1	
Structure	Steel	D21	N/A	
Balustrade	Steel	D21	N/A	

Further Comments

The balcony build-up dimensions were determined by first measuring the depth of the structure. From this measurement, we then subtracted the known values for various components such as the cavity and structural elements.

Penetrations

N/A.

Aperture Openings

N/A

A21



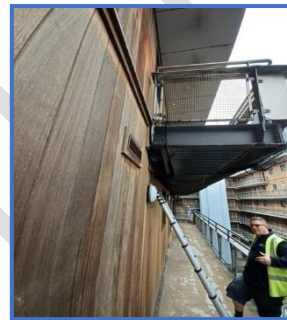
B21



C21



D21



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4.22 Location: L22

Location: Courtyard Elevation

Location Intention: To confirm balcony soffit build-up (Courtyard balconies)

Attachment Type: Attachment Type 4 (Balcony Approach)

Floor: third

Table 86 Inspection Location: L22

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
Soffit 1	Two types of soffit materials were observed; one of them was a 3mm PVC panel. This was fixed to the steel balcony structure via timber framing.	A22	B	
Soffit 2	Two types of soffit materials were observed; one of them was a 20mm plywood board. This was fixed to the steel balcony structure via timber framing.	B22	D	
Cavity	175 mm Cavity present. Wiring was present within the cavity.	C22	N/A	
Floor shuttering	Assumed 5mm steel	C22	A1	
Surface finish	125mm Concrete	D22	A1	
Structure	Steel	C22	N/A	
Balustrade	Steel	E22	N/A	

Further Comments

The balcony build-up dimensions were determined by first measuring the depth of the structure. From this measurement, we then subtracted the known values for various components such as the cavity and structural elements.

Penetrations

N/A.

Aperture Openings

N/A

A22



B22



C22



D22



E22



4.23 Location: L23

Location: Napels Street Elevation

Location Intention: To confirm the private balcony build up

Attachment Type: Attachment Type 1 and 3 (Cantilever and inset Balconies)

Floor: first

Table 87 Inspection Location: L23

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
Soffit 1	No soffit present	A23 & B23	N/A	
Surface finish	30mm Timber	A23 & B23	F	
Structure	Steel	A23 & B23		
Balustrade	Steel	A23 & B23		

Further Comments

The balcony build-up dimensions were determined by first measuring the depth of the structure. From this measurement, we then subtracted the known values for various components such as the cavity and structural elements.

Penetrations

N/A.

Aperture Openings

N/A

A23



B23



4.24 Location: L24

Location: Napels Street Elevation

Location Intention: To confirm the private balcony soffit

Attachment Type: Attachment Type 1 and 3 (Cantilever and inset Balconies)

Floor: first

Table 88 Inspection Location: L24

Wall Build Up:	Description	Photo Reference	Combustibility Rating (Euroclass BS EN 13501)	Classification rating
Soffit 1	No soffit present	A23 & B23	N/A	
Surface finish	30mm Timber	A23 & B23	F	
Structure	Steel	A23 & B23		
Balustrade	Steel	A23 & B23		

Further Comments

The balcony build-up dimensions were determined by first measuring the depth of the structure. From this measurement, we then subtracted the known values for various components such as the cavity and structural elements.

Penetrations

N/A.

Aperture Openings

N/A

5. Limitations

This Post Site Inspection Report will not consider liability or responsibility for any observation or judgement not contained or not made within this report and the findings are not to be treated as evidence in any arbitration, tribunal, or litigation without written confirmation from CHPK Fire Engineering.

The Post Site Inspection Report will not determine whether an external wall system is 'safe.'

This Post Site Inspection Report will not address spread of fire from one building to another, the performance of external walls in terms of fire resistance, or the ability of the wall system to maintain structural stability.

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External Wall Type 7 - Render - Inspection Location 1

A1



B1



C1



D1



E1



F1



G1



H1



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I1



J1



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External Wall Type 1 - Render - Inspection Location 2

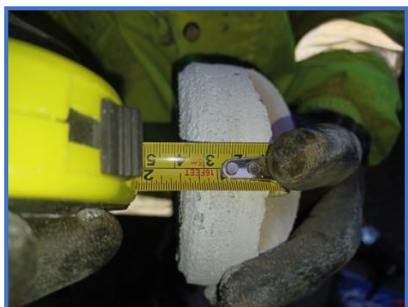
A2



B2



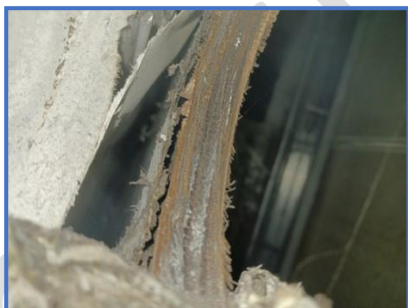
C2



D2



E2



F2

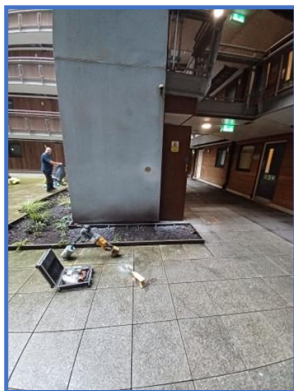


G2



External Wall Type 1 - Render - Inspection Location 3

A3



B3



C3



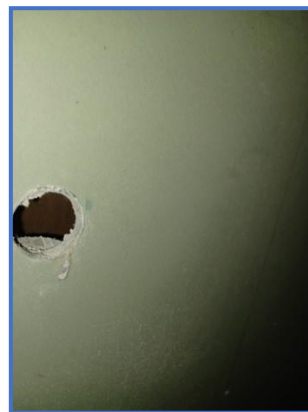
D3



E3



F3



G3



External Wall Type 1 - Render - Inspection Location 4 (Core 2)

A4

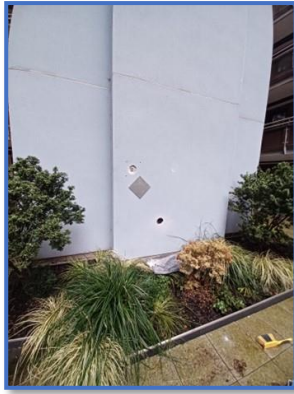


B4



External Wall Type 1 - Render - Inspection Location 5 (Core 2)

A5



B5



C5



D5



E5



External Wall Type 1 - Render - Inspection Location 6 (Core 2)

A6



B6



C6



D6



E6



F6

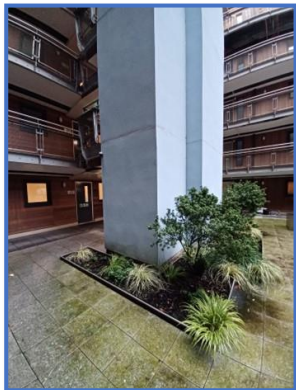


G6



External Wall Type 1 - Render - Inspection Location 7 (Not done due to electrical meters impeding access)

A7



B7



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External Wall Type 1 - Render - Inspection Location 8 (Cavity Barrier)

A8



B8



C8



External Wall Type 1 - Render - Inspection Location 9 (Cavity Barrier)

A9



B9



C9



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Appendix D -Wall type 2B visual survey

A1



B1



C1



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