

Facade Survey Assessment Report (Incl. EWS1 Determination)



Building: Boatmans, 42 City Road East, Manchester M15 4QF
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EXECUTIVE SUMMARY

- 0.1 This report provides an analysis of the type and nature of the cladding systems utilised within the construction of Boatmans, 42 City Road East, Manchester M15 4QF with the specific objective of providing informed advice and guidance as to whether the external façade and any attachments meets (or not) the advice and guidance issued by the Ministry of Housing, Communities and Local Government (MJHCLG).
- 0.2 This report was commissioned to provide an analysis and evaluation of the current cladding systems employed at the property and determine compliance with the MHCLG guidance as well as provide an EWS1 form for the client to use in respect of any financing arrangements for the property.
- 0.3 The scope of this report covers the external façade and any attachments to Boatmans, 42 City Road East, Manchester M15 4QF only; all other areas including tenants demised areas are excluded from this report and investigation.
- 0.4 It was noted that the following types of cladding systems have been utilised on site:

Cladding / Wall Type 1 – Facing Brickwork

Facing Brickwork (100mm), Insulation (Soda-lime-silicate glass wool) (150mm), Blockwork (Assumed) (Unknown Thickness).

Cladding / Wall Type 2 – Timber Cladding

Horizontal Timber Cladding (19mm and 34mm), Membrane (Assumed Breathable Membrane) (< 1mm), Clear Cavity (25mm), Blockwork (100mm), Insulation (Soda-lime-silicate glass wool) (150mm), Blockwork (Assumed) (Unknown Thickness).

Cladding / Wall Type 3 – Clay Blockwork

Clay Blockwork (Unknown Thickness), Internal Structure (Unknown Composition / Thickness).

0.5 Overview of findings

- 0.5.1 The physical survey of the building highlighted a number of areas of concern due to the inconsistencies in full cavity fill insulation, cavity barriers and the composition of materials used within the facade. Testing of the materials obtained by representative sampling at a UKAS accredited laboratory has indicated that the composition of the facade and the materials used within was consistent, with the exception of the full cavity fill insulation and that one material tested was not of limited combustibility. This has impacted upon the determination for the EWS1 Form which has been peer reviewed by a Chartered Fire Engineer. Following this determination, we have highlighted our observations regarding compliance with the Building Regulations and performance standards. Finally, this document provides a brief summary of the recommendation for remediation in respect of the facade.

- 0.5.2 The physical survey of the building, representative sampling and testing of materials at a UKAS accredited laboratory has enabled a determination of **B2** for the EWS1 Form. A full Fire Safety Risk Assessment of the fire risk posed by these material / attachments will be necessary.
- 0.5.3 The determination of B2 has been established based on investigative works which have confirmed:
- The primary materials of the external walls are considered not to be of limited combustibility as defined within BS 9991:2015 as the Wood Resin (Timber Cladding) was found to be both combustible and flammable. These materials increase the fire risk and may allow for fire spread across compartments and the façade.
 - The timber decks to the balcony attachments are considered to be both combustible and flammable, potentially increasing the risk of fire spread across the facades.

0.6 Remediation Requirements

0.6.1 Short Term

- Clear dialogue should be established between the responsible person and the relevant fire and rescue service to ensure all parties are aware of the current building arrangements including any risks associated with the combustible and flammable timber cladding and timber decking to balconies.
- Clear dialogue should be established between the responsible person and the current occupants of all apartments to assist in minimising the risks associated with external fires, including:
 - All external ignition sources (smoking / BBQ's) should be removed from balcony areas.

Given the location and orientation of the timber cladding / timber decking, restriction on the use of the balconies should be considered until the timber is removed.

- The current fire risk assessment should be reviewed and updated where necessary following the findings evidenced in this report. This review should include consideration of the current evacuation strategy (which the current assessment fails to highlight) to establish its suitability. If the current strategy is found to be inappropriate with regards to the current risk, the National Fire Chiefs Council (NFCC) guidance should be considered.

- The ignition risk from arson, commercial occupancies, carparking and air-conditioning units should also be considered where the timber cladding is located at ground level.

0.6.2 Medium Term

- Comprehensive investigations should be undertaken to establish the extent of the current full fill cavity insulation arrangement (wall types 1 and 2), noting any missing, incomplete or defective installations that do not fully fill the cavity. Where appropriate, remedial works should be undertaken to ensure full compartmentation across the façades is achieved – this can be achieved either by re-filling the cavity or installing cavity barriers.
- The timber cladding and timber decking to balconies should be replaced with material(s) which meet the requirements of regulation 7(2) of the Building Regulations as a priority.
- Due to the limited details available relating to the ‘as built’ structure for the clay blockwork wall (wall type 3), it is recommended that the inner wall structure be evaluated to determine its full composition and fire risk due to its location around the ground floor car parking area.

0.6.3 Long Term

- Given that the Building Safety Bill is highly likely to be legislated over the next two to three years, it is recommended that the actions undertaken should ensure that Boatmans will be in a position to demonstrate structural and fire safety standards against the new legislation and regulations including:
 - Development of a Safety Case.
 - Collection and presentation of the necessary building information in a digital format.

Please Note: This is not an exhaustive list, nor is it intended to act as a design guide for compliance nor to provide legal advice in relation to any applicable British Standards, Guidance, Regulatory requirements or statutory obligations.

1.0 INTRODUCTION

- 1.1 Ark Sustainability Ltd (Ark) has been instructed by Boatmans Management Company Limited c/o Rendall and Rittner Ltd to undertake investigations of the external façade Boatmans, 42 City Road East, Manchester M15 4QF to support meeting the requirements of the Ministry of Housing Communities and Local Government (MHCLG) current guidance regarding external façade and cladding systems.
- 1.2 Following the Grenfell disaster and the publication of numerous advice notes and guidance issued by MHCLG regarding external façades and cladding systems (with the most recent dated January 2020) along with the publication of the Building (Amendment) Regulations 2018 (S.I. 2018/1230) banning certain cladding materials, there is a clear need for owners to determine the suitability and sufficiency of the materials used in the external façade construction and importantly whether or not the external facades are meeting the recommendations contained within the said advice notes and guidance.
- 1.3 Ark has developed a methodology for undertaking such investigations based on the advice and guidance issued by the MHCLG which will provide the client with a high level of validation and verification of the composition of an external façade and how this does or does not meet the recommendations, guidance and advice provided by the MHCLG.

1.4 Scope and Exclusions

- 1.4.1 This report and investigation is limited to the external façade of Boatmans Management Company Limited c/o Rendall and Rittner Ltd only and in line with the proposed methodology as set out in Ark's proposal reference ASLPR200321.
- 1.4.2 The facade survey and investigation is intended to provide indicative evidence as to the facade composition and the materials used to assist with a determination for the issuance of an EWS1 Form. The facade survey and investigation is by no means conclusive as it limited to representative sampling.
- 1.4.3 In this report - elements of building structure and fabric may be referred to, but this is for reference only and is not to be relied upon for determination of composition nor condition. Where we feel further investigation is merited, specific reference to this will be made in our report. The report is not intended to comment on the condition and the quality of the installation of facade components and where reference is made to these, the purpose is to provide context to observations where appropriate.
- 1.4.4 Whilst the report in various areas refers to the MHCLG guidance, the scope is limited to the guidance relating to the external façade and any attachments only. It excludes consideration of the guidance in relation to other areas, such as smoke control systems and fire doors.

1.5 Methodology

1.5.1 In line with the agreed methodology as detailed within Proposal ASLPR200321, the following methodology has been adopted.

1.5.2 Stage One & Two - Desk Top Review, Orientation Survey & RAMS

- Initial desk-top research of the information available (on public databases and open sources) - product literature, fire test results, client held information/reports etc and other publicly available information relating to the property.
- Orientation visit undertaken at the building subject to survey and an initial assessment of the external wall construction and cladding systems.
- Desk-top review and method statement produced detailing the survey and investigation method (Desk-Top Review and Method Statement).

1.5.3 Stage Three - Sampling and Investigation Survey

- Appointment of competent specialist surveying/fire engineering consultant
- Review of any available/relevant documentation provided by the client including a copy of any existing cladding survey or details/O&M Manuals (containing as-built documentation, specification and drawings) and other related documentation and photographs for reference purposes.
- Intrusive investigation of the external façade construction by representative sampling using endoscope technology and the taking of small-bore samples where available and appropriate.

1.5.4 Stage Four - Assessment of Facade Materials

- Samples analysis and assessment at a UKAS registered laboratory
- Review of laboratory analysis report and survey findings by the appointed Consultant.

1.5.5 Stage Five - Evidence Report and EWS1 submission

The purpose of this final report is to provide clients with a formal understanding of the external façade construction and fire safety arrangements and to provide formal due diligence in determining compliance to current guidance and to enable the issuance of an EWS1 form.

- Appointed Consultant will consider the available documentary evidence together with the on-site investigation data and laboratory results
- Combining all the available information a formal investigation report will be produced.

- Where appropriate - a Chartered Fire Engineer will review the findings and the recommendations for remediation action in accordance with guidance issued by MHCLG (2020) and the IFE (Guidance Note 1).

- 1.6 Where it is clear that insufficient evidence is available to confirm compliances or non-conformance relating to the external facade in respect of the advice and guidance issued by the MHCLG along with the 2018 Regulations, this will be clearly indicated in the section entitled 'Recommendations for Remediation Work'. This will provide a clear route for the client to achieve the necessary standard of compliance and evidence in respect of the EWS1 Form and MHCLG Guidance (2020).

Note: Where clients wish ASL to project manage or review remediation work schemes then this will be subject to a separate proposal.

- 1.7 A Fire risk assessment which includes consideration of the findings of this report may also be required in order to provide a determination for the purposes of the EWS1 Form and managing any risks safely within the building under review. Where this is necessary ASL will advise the client and this is subject to a separate proposal.

1.8 Documentary Evidence

1.8.1 The following evidence has been provided by the instructing client or was available from alternative sources at the time of compiling this report.

Documentary Evidence	Provided by Client YES/NO?	Available from alternative Source YES/NO?	Source and Document Dates?	Drawing / Document References
'As-Built' Plans	No	No	N/A	N/A
As-Built' Technical Specification/ details	No	No	N/A	N/A
Fire Strategy Drawings	No	No	N/A	N/A
Fire Risk Assessment	Yes	No	Worksafe Solutions Consultancy Ltd. 26.11.2019	Fire Risk Assessment
Operations & Maintenance Manuals (O&M)	No	No	N/A	N/A
Compartmentation Plan	No	No	N/A	N/A
Fire Alarm & Detection System	No	No	N/A	N/A
Smoke Control Systems	No	No	N/A	N/A
AWSS	No	No	N/A	N/A
Wet/Dry Riser	No	No	N/A	N/A
Cladding System Technical Specification/ Design	No	No	N/A	N/A
Architectural Design Drawings	Yes	No	David McLean Design. 2001	Preliminary, Planning and Construction Design Drawings

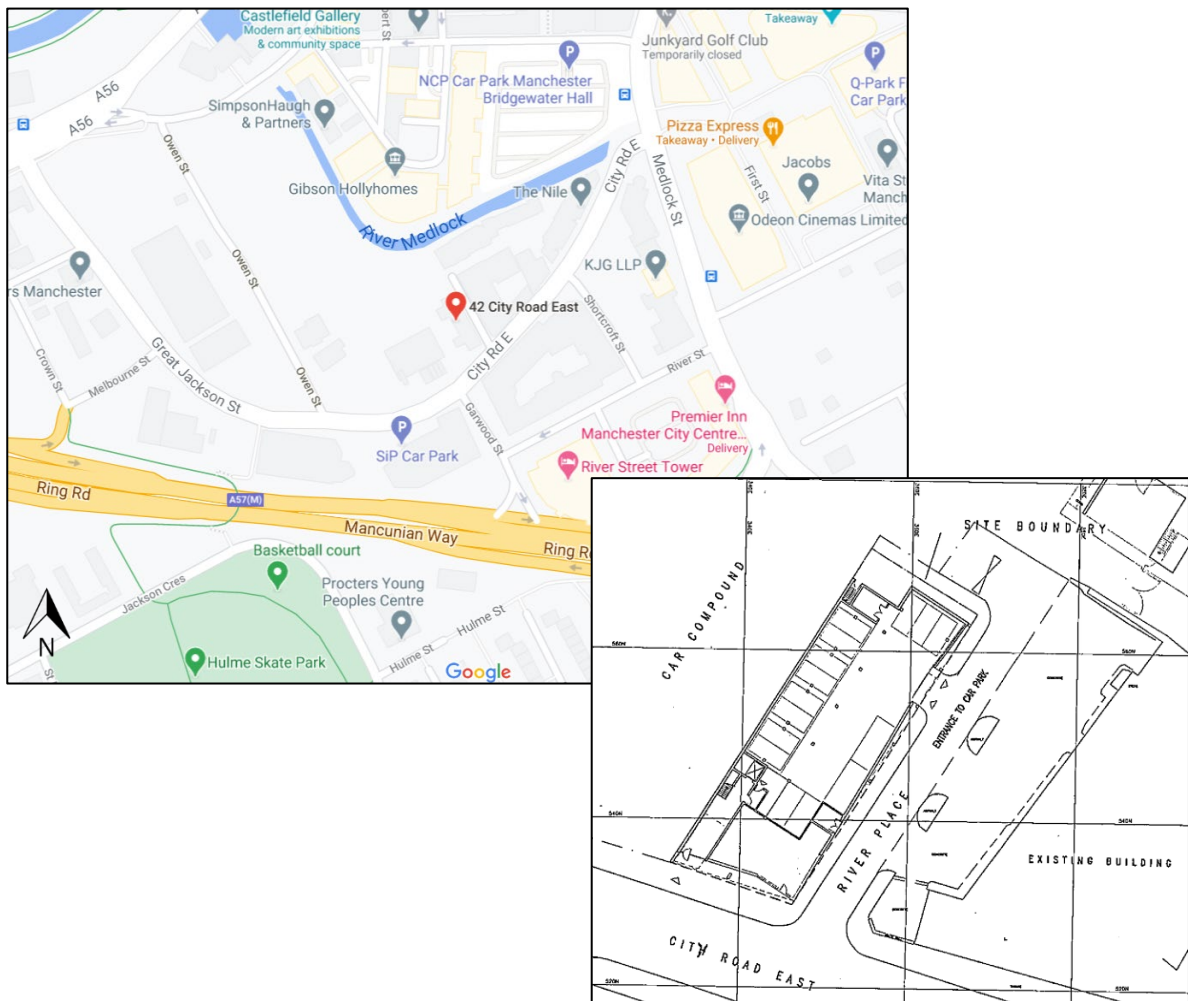
2.0 DESCRIPTION OF PROPERTY

- 2.1 Boatmans, 42 City Road East, Manchester M15 4QF is a detached, purpose built, mixed use development located near to Manchester City Centre situated on the corner of River Place and City Road East.

The building consists of seven storeys, with car parking, pedestrian residential entrance, service areas and a commercial unit to the ground floor with 29 residential apartments spread over first to sixth floor levels.

The building is provided with two stair cores and a single lift core which has been confirmed to be a fire fighting lift (Fire Risk Assessment, Worksafe Solutions Consultancy Ltd. 26.11.2019) serving all floor levels.

A large open communal courtyard is located at first floor level looking towards the new Deansgate Square Development with a second large communal terrace being located at sixth floor level to the front of the building overlooking City Road East.



2.2 Determining Building Height

2.2.1 For the purposes of this report the method outlined in diagram D6 of the building regulations has been used to determination approximate building height.

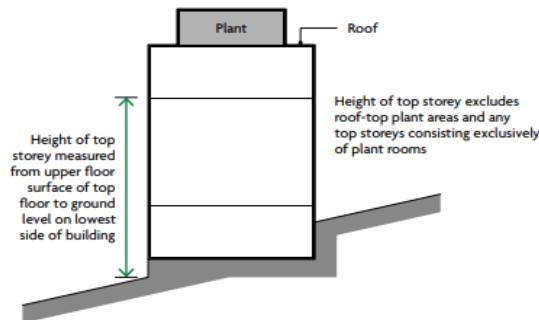


Figure 1 – Diagram D6 Approved Document B - Height of top storey in building.

2.2.2 The Finished Floor Level (FFL) of the uppermost storey has been calculated as being 20 metres above ground level.

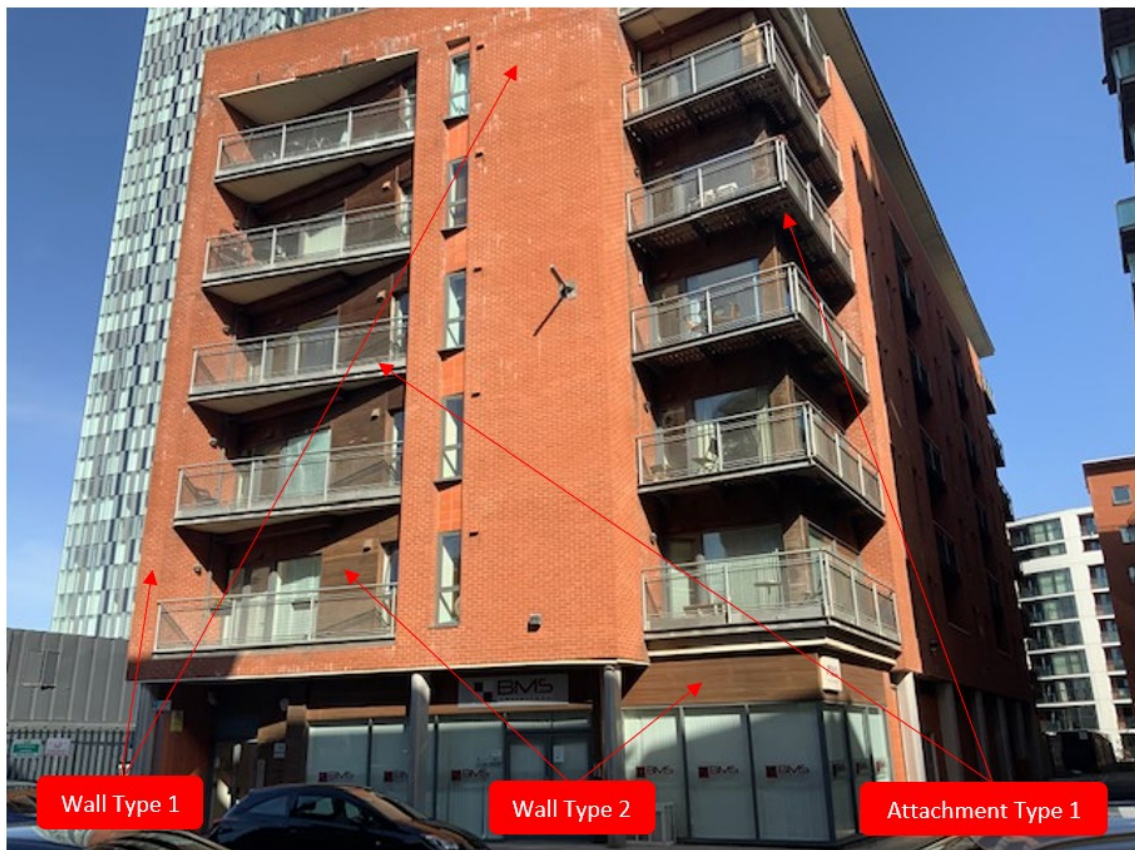
2.3 Basis of Fire Safety Design

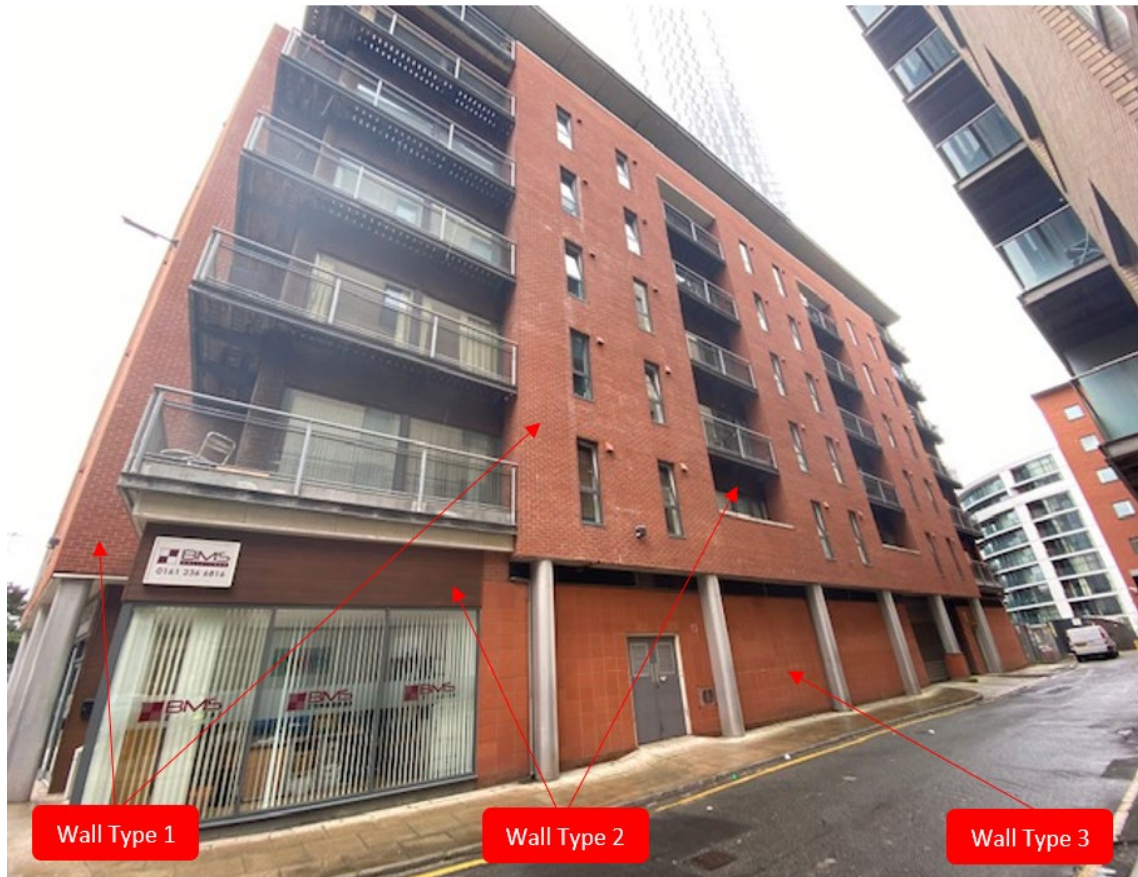
Basis of Fire Safety Design Provided?	Approved Document B	BS9991	BS9999	BS 7974
No	X			

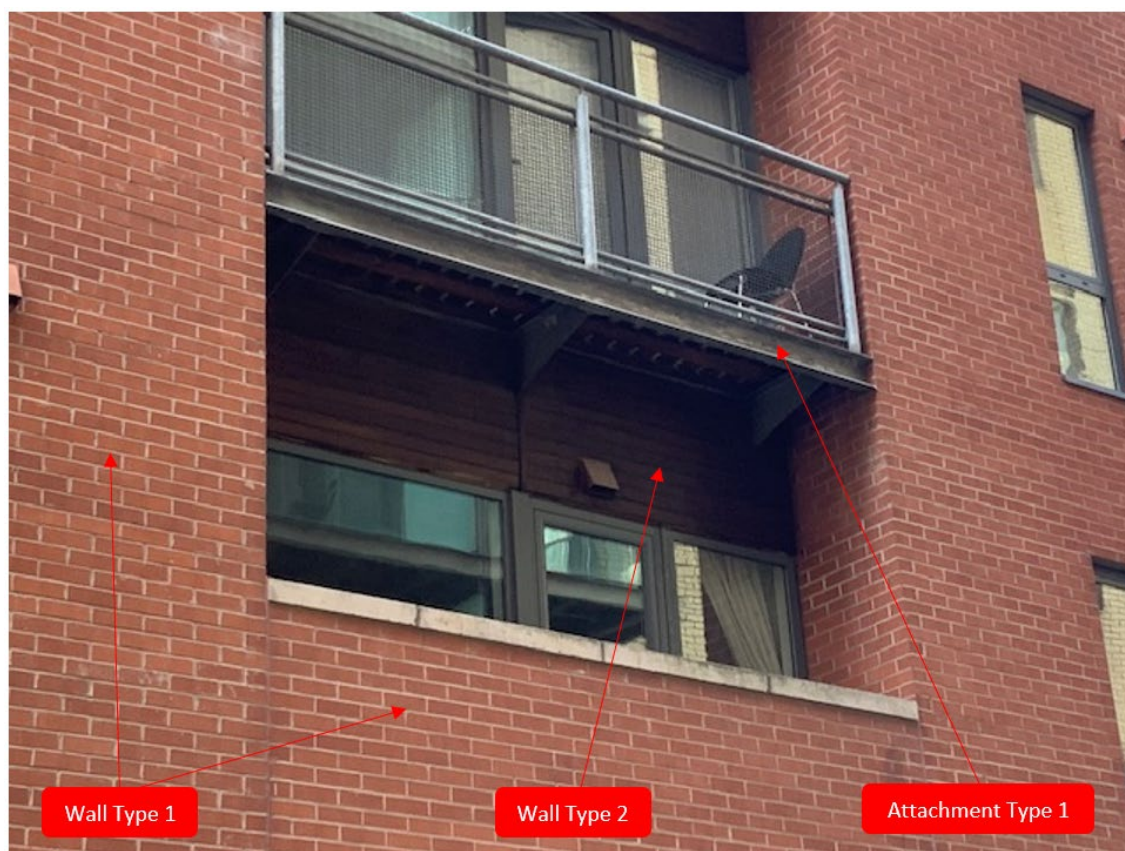
Please Note: Where there is no clear evidence of the basis of design it has been assumed that the building has been design in accordance with Approved Document B, appropriate to date of construction (where known).

3.0 DETERMINATION OF EXTERNAL FAÇADE AND ADEQUACY

- 3.1 The following observations/statements are based upon a visual inspection, sampling survey, intrusive investigation and data/information made available or obtained through publicly available databases.
- 3.2 The statements detailed below as to the facade composition should only be considered to be indicative and may be used in conjunction with more wholistic assessments fire safety risk assessments which taken into account building construction, design and fire safety measures.
- 3.3 The following wall types have been established based on the intrusive survey carried out on 21st September 2020. The full and detailed survey report is provided in Appendix A.







Wall Type 1 – Facing Brickwork

#id	Material (External Inwards)	Thickness	Combustibility	Reference
1	Facing Brickwork	100mm	A1	2000/147/EC
2	Insulation (Soda-lime-silicate glass wool)	150mm	Not Combustible or Flammable	C9113, C9114, C9115
3	Blockwork (Assumed)	Unknown	A1	2000/147/EC

Wall Type 2 – Timber Cladding

#id	Material (External Inwards)	Thickness	Combustibility	Reference
1	19mm Horizontal Timber Cladding	19mm and 34mm	Combustible and Flammable	C9637-1, C9638-6
2	Membrane (Assumed breathable membrane)	< 1mm	Unknown	Unknown
3	Clear Cavity	25mm	N/A	N/A
4	Blockwork	100mm	A1	2000/147/EC
5	Insulation (Soda-lime-silicate glass wool)	100mm	Not Combustible or Flammable	C9113-2A, C9114-5A, C9115-7A
6	Blockwork (Assumed)	Unknown	A1	2000/147/EC

Wall Type 3 – Clay Blockwork

#id	Material (External Inwards)	Thickness	Combustibility	Reference
1	Clay Blockwork	Unknown	A1	2000/147/EC
2	Internal Structure	Unknown	Unknown	N/A

In addition to the various wall types, the following attachments to the façade were noted:

Attachment Type 1

#id	Attachment	Construction	Combustibility	Reference
1	Balconies	Metal (Steel Assumed) structure, metal handrail and posts with mesh metal grille balustrade. Timber decks.	Unknown	N/A

3.4 Materials Testing

3.4.1 Laboratory Details

Sandberg Consulting Engineers,
Sandberg LLP
5 Carpenters Place London SW4 7TD.

Sandberg was one of the first construction materials related laboratories to receive UKAS testing accreditation in May 1985 (by the UKAS fore-runner NATLAS). Its laboratories have UKAS testing accreditation for a wide range of sampling and testing services both in the laboratory and on-site. Sandberg is also a corporate member of the Institute of Expert Witnesses.

3.4.2 Laboratory Analysis

Following the analysis of the samples as referred to in the Survey Report the samples were tested and the following results obtained;

Sample No(s)	Description	Laboratory Analysis	Determination of Combustibility	Presence of Fire Retardant
C9113-2A, C9114-5A, C9115-7A	Orange Insulation Wool	Soda-lime-silicate glass wool	Not Combustible or Flammable	N/A
C9637-1, C9638-6	Timber	Wood resin	Combustible and Flammable	The burning behaviour did not suggest the presence of an effective fire retardant.

3.4.3 BR135 Testing and Fire Performance Standards - Summary

3.4.3.1 The materials utilised within the facades (wall types 1 and 2) are representative of those primarily used within 'traditional construction' methods, therefore a BR135 assessment under BS 8414 would not be appropriate for these materials and arrangements. Although wall type 2 utilises an external timber cladding which has been tested within a UKAS accredited laboratory and found to be both combustible and flammable, the underlying construction is broadly similar with that of wall type 2.

3.5 Cavity Barriers

3.5.1 'As built' design drawings and construction specifications were not available for reference at the time of authoring this report and therefore it is not possible to fully clarify the design intention with regards to cavity barrier design.

The intrusive investigation survey of 1st September 2020 indicated that the construction of the façade utilises a full cavity fill insulation type which under current and past Building Regulations does not require cavity barriers on compartment lines due to the limited potential for fire spread within a fully filled cavity. However, it must be noted that sample locations 1 and 4 revealed a lack of thermal insulation within the associated cavity wall and as such, a clear cavity could allow for unseen fire spread between compartments as well as affecting the thermal performance of the external wall. The extent of missing thermal wall insulation was not surveyed.

Sample location 1 at the ground to first floor horizontal compartment line also revealed a clear cavity without provision of a cavity barrier. The construction arrangement would appear to differ between the ground floor; glazed walls / timber cladding / clay blockwork and first floor where the facing brickwork / blockwork cavity wall system is noted. Assuming the full cavity insulation continues from ground floor level upwards, the need for cavity barriers would not be required as noted above. However, if the construction methods changes from ground to first floor levels, it would be assumed that a cavity barrier would have been installed to mitigate the risk of potential unseen fire spread between compartments.

3.6 Building Regulations

- 3.6.1 *Fire resistance* - An external wall may need fire resistance to meet the requirements of the applicable Building Regulations (Section 3 (Means of escape – flats), Section 6 (Load-bearing elements of structures – flats) or Section 11 (Resisting fire spread from one building to another). This should be considered as part of any fire risk assessment for the building as is not addressed within this report.
- 3.6.2 *Non-combustible materials in external walls of tall buildings* - Regulation 7(1) of the Building Regulations requires that materials used in building work are appropriate for the circumstances in which they are used. Regulations 7(2) set requirements in respect of external walls and specified attachments in relevant building. Regulation 7(2) applies to any building with a storey of at least 18m above ground level as measured using the method outlined in diagram D6 and which contains one or more dwellings; an institution; or a room for residential purposes (excluding any room in a hostel, hotel, or a boarding house). It requires that all materials which become part of an external wall or specified attachment achieve class A2-s1, d0 or class A1, other than the exemption described in regulation 7(3).
- 3.6.3 *Combustibility of external walls* - Buildings to which regulation 7(2) of the Building Regulations apply require that all materials used within the external wall construction should achieve class A2-s1, d0 or class A1. This does not apply to the following;
- cavity trays when used between two leaves of masonry;
 - any part of a roof (other than any part of a roof which falls within paragraph (iv) of regulation 2(6)) if that part is connected to an external wall;
 - door frames and doors;

- electrical installations;
- insulation and water proofing materials used below ground level;
- intumescent and fire stopping materials where the inclusion of the materials is necessary to meet the requirements of Part B of Schedule 1;
- membranes;
- seals, gaskets, fixings, sealants and backer rods;
- thermal break materials where the inclusion of the materials is necessary to meet the thermal bridging requirements of Part L of Schedule 1; or
- window frames and glass.

3.6.4 *Please note: for the purposes of the EWS1 Form - the requirement for meeting limited Combustibility is different. The definition of material of limited combustibility (BS9991:2015) is as follows; a non-combustible material; or any material of density 300 kg/m³ or more which, when tested in accordance with BS 476-11, does not flame and the rise in temperature on the furnace thermocouple is not more than 20 °C; or any material with a non-combustible core of 8 mm thick or more, having combustible facings (on one or both sides) not more than 0.5 mm thick; or a material classified as class A2-s3, d2 in accordance with BS EN 13501-1, when tested in accordance with BS EN ISO 1182 or BS EN ISO 1716 and BS EN 13823.*

3.6.5 Glass Balustrading - Glass in balustrades must meet the functional requirements of Part K of the building regulations. Generally, this may mean that glazing within balustrades is either laminated with a PVB or SGP interlayer. Laminated glass used balconies in buildings for which regulation 7(2) of the building regulations applies would not meet the fire classification requirements by virtue of the PVB or SGP layer within layers of glass float.

3.7 Observations / Comments Regarding Building Regulations

3.7.1 The main composition and construction of the facades are comprised of mainly inert materials utilising 'traditional construction' methods. However, where combustible and flammable external wall components (timber cladding) have been used, these would not be deemed to satisfy the requirement of the Building Regulations which state; *'The external wall of a building should not provide a medium for fire spread if that is likely to be a risk to health and safety'* (Paragraph 12.1, Approved Document B2 Volume 2 2019).

4.0 EWS1 FORM DETERMINATION

4.1 General

- 4.1.1 This provision of an EWS1 form is intended for recording using a consistent manner and approach what assessments has been carried out for the external wall construction of a particular residential apartment buildings where the highest floor is 18m or more above ground level or where specific concerns exist.
- 4.1.2 The notes accompanying the EWS1 form state clearly that it should not be used for other purposes.
- 4.1.3 The EWS1 form is to be completed by a competent person with the levels of expertise as described in Notes 2 and 3 on the form.
- 4.1.4 This review is for the sole and exclusive use of the client organisation named on the form. No responsibility is accepted to any third party for the whole or any part if its contents. For the avoidance of doubt, the term 'third party' includes (but is not limited to): any lender who may see the review during the process through which they come to make a loan secured on any part of the respective property; and any prospective purchaser who may see the review during the process through which they come to purchase an interest in any part of the respective property.
- 4.1.5 The investigation must include evidence of the fire performance of the actual materials installed. This includes either a physical inspection by the signatory to this form, or inspection of photographic or similar information gathered by a 3rd party (subject to the signatory having sufficient confidence in that 3rd party).
- 4.1.6 It would also include the standards of construction of key fire safety installations such as cavity barriers. Given the nature of external walls this would typically involve investigations in a limited number of locations as detailed above. The notes to the form make it clear that a review of design drawings may assist but on their own would not be sufficient. Where the wall construction includes multiple wall types, the investigation should include each type.
- 4.1.7 Attached to the EWS1 form is a flowchart that is to be used to determine what option of form can be signed.

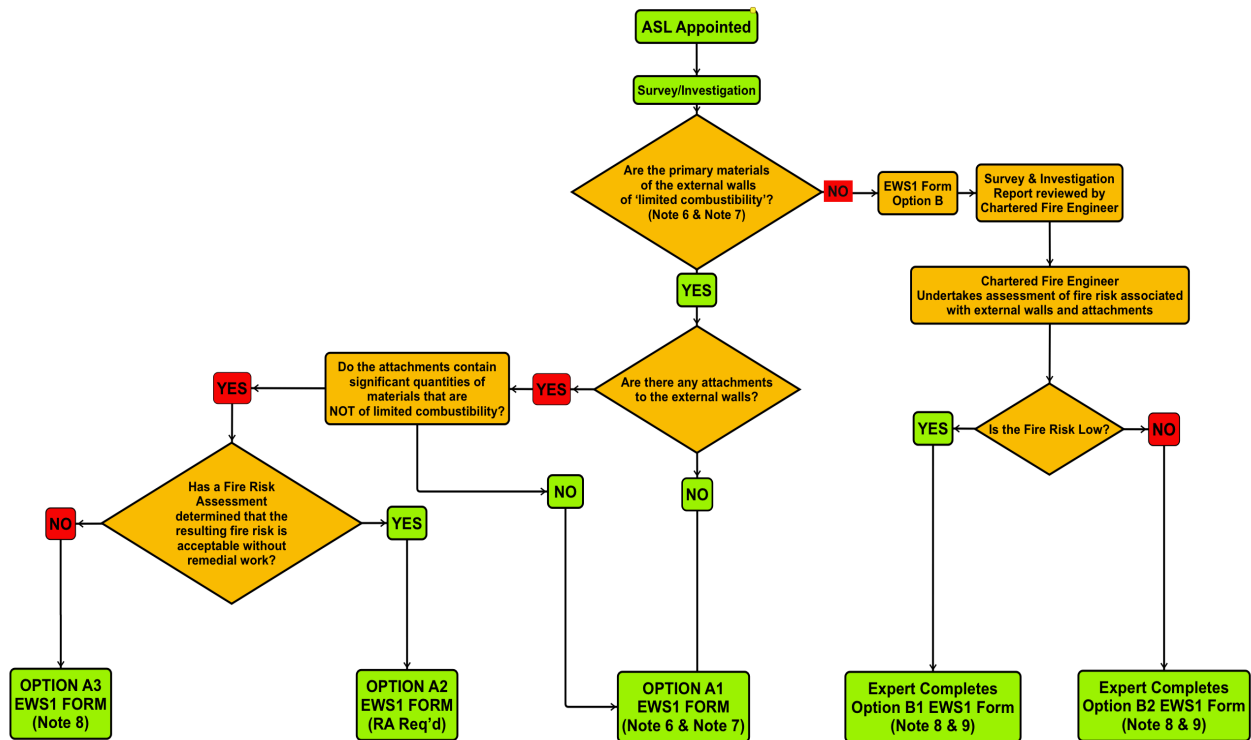


Figure – EWS1 Form Flowchart (ASL, 2020)

EWS1 Form Determination

4.2 The EWS1 determination for Boatmans, 42 City Road East, Manchester M15 4QF, is considered as follows:

Option B2

The overall EWS1 Form Determination reached by the appointed Chartered Fire Engineer is that of **B2**. This has been determined due to:

- The primary materials of the external walls are considered not to be of limited combustibility as defined within BS 9991:2015 as the Wood Resin (Timber Cladding) was found to be both combustible and flammable.
- The timber decks to the balcony attachments are considered to be both combustible and flammable, potentially increasing the risk of fire spread across the facades.

5.0 REMEDIATION WORK

5.1 Recommendations for Remediation Work

This section is intended to provide a brief overview of what might be required to the external facade/materials to enable compliance with current regulations and standards and how this might impact upon the determination for the EWS1 Form.

5.2 Remediation Recommendations

5.2.1 Short Term

- Clear dialogue should be established between the responsible person and the relevant fire and rescue service to ensure all parties are aware of the current building arrangements including any risks associated with the combustible and flammable timber cladding and timber decking to balconies.
- Clear dialogue should be established between the responsible person and the current occupants of all apartments to assist in minimising the risks associated with external fires, including:
 - All external ignition sources (smoking / BBQ's) should be removed from balcony areas.

Given the location and orientation of the timber cladding / timber decking, restriction on the use of the balconies should be considered until the timber is removed.

- The current fire risk assessment should be reviewed and updated where necessary following the findings evidenced in this report. This review should include consideration of the current evacuation strategy (which the current assessment fails to highlight) to establish its suitability. If the current strategy is found to be inappropriate with regards to the current risk, the National Fire Chiefs Council (NFCC) guidance should be considered.
- The ignition risk from arson, commercial occupancies, carparking and air-conditioning units should also be considered where the timber cladding is located at ground level.

5.2.2 Medium Term

- Comprehensive investigations should be undertaken to establish the extent of the current full fill cavity insulation arrangement (wall types 1 and 2), noting any missing, incomplete or defective installations that do not fully fill the cavity. Where appropriate, remedial works should be undertaken to ensure full

compartmentation across the façades is achieved – this can be achieved either by re-filling the cavity or installing cavity barriers.

- The timber cladding and timber decking to balconies should be replaced with material(s) which meet the requirements of regulation 7(2) of the Building Regulations as a priority.
- Due to the limited details available relating to the ‘as built’ structure for the clay blockwork wall (wall type 3), it is recommended that the inner wall structure be evaluated to determine its full composition and fire risk due to its location around the ground floor car parking area.

5.2.3 Long Term

- Given that the Building Safety Bill is highly likely to be legislated over the next two to three years, it is recommended that the actions undertaken should ensure that Boatmans will be in a position to demonstrate structural and fire safety standards against the new legislation and regulations including:
 - Development of a Safety Case.
 - Collection and presentation of the necessary building information in a digital format.

Please Note: This is not an exhaustive list, nor is it intended to act as a design guide for compliance nor to provide legal advice in relation to any applicable British Standards, Guidance, Regulatory requirements or statutory obligations.

Remediation Notes

Limitations - The following is intended only as a guide to the legal duties / obligations / requirements which should be considered when undertaking remediation work on buildings. It is not intended as legal advice and is not a comprehensive list of duties/obligations and requirements. If any doubt exists as to these requirements, independent legal advice should be sought.

Legal Considerations - Where remediation work is undertaken to improve the fire safety of a building, it may involve the removal/replacement of both a 'thermal element' of the building and materials used within the facade. This work may therefore fall within the scope of "notifiable works" as defined within the Building Regulations 2010.

If the works are 'notifiable' this means that before undertaking the work, responsible persons must submit a full plans application detailing the work they are proposing to carry out to a 'Building Control Body'. As part of this process responsible persons will be required to pay a fee (fees determined by the body to which you apply) and they are required to undertake a statutory consultation with the relevant Fire Safety Enforcement Authority regarding these plans (usually the local Fire and Rescue Service).

The Regulatory Reform (Fire Safety) Order (2005) applies to premises which are defined as any place and in particular includes any workplace. It does not apply to domestic premises, except for a provision allowing the enforcing authority to prohibit the use of a property in certain circumstances. The Court of Appeal has upheld that the common parts of residential premises are considered non-domestic premises because they are available for use by others as a place of work. The Chief Fire Officers Association (CFOA) states that: 'For the purposes of clarity, the front doors to flats are considered to be a common protective measure, typically under the control of the occupier as an article 5(4) duty holder, because an early failure of the door can pose a serious risk to the safety of other relevant persons on the premises'. The Order applies to all non-domestic premises, which includes the common parts of apartment buildings and both the common and shared parts of Houses in Multiple Occupation.

The Fire Safety Order imposes numerous legal duties which the responsible person must perform. There is a general duty under the Fire Safety Order to take such fire precautions as may be reasonably required to ensure that premises are safe for the occupants and those in the immediate vicinity and a general duty to carry out a fire risk assessment.

Under Article 15, the responsible person is under a duty to provide appropriate procedures to be followed in the event of serious and imminent danger from fire to relevant persons. By virtue of the Fire Safety Order, the Responsible Person (see definitions) is required to ensure a fire risk assessment is carried out of their premises. This must be a suitable and sufficient assessment of the hazards and risks to which relevant persons are exposed for the purpose of identifying the general fire precautions that need to be taken to comply with the requirements under the Order.

Article 9 Obligations - The responsible person must make a suitable and sufficient assessment of the risks to which relevant persons are exposed for the purpose of identifying the measures they need to take to comply with the requirements and prohibitions imposed on them by the Order. The nature of the assessment will vary according to the type and use of the premises, the persons who use or may use the premises, and the risks associated with that use. A risk assessment should be reviewed regularly by the responsible person to keep it up to date, valid and to reflect any significant changes that may have taken place.

It is recommended that following this issuance of this report and the EWS1 Form (where applicable) that the responsible person ensure that the Risk Assessment for the building is reviewed and updated where appropriate and necessary.

New Fire Safety Bill - Main elements of the Fire Safety Bill include a clarification that the scope of the Regulatory Reform (Fire Safety) Order 2005 to include the external walls of the building (including cladding).

Building Regulation Applications – Under Regulation 3 of the Building Regulations, “Building Work” which would attract a requirement to provide an application, means

- (a) the erection or extension of a building;
- (b) the provision or extension of a controlled service or fitting in or in connection with a building;
- (c) the material alteration of a building, or a controlled service or fitting, as mentioned in paragraph (2);
- (d) work required by regulation 6 (requirements relating to material change of use);
- (e) the insertion of insulating material into the cavity wall of a building;
- (f) work involving the underpinning of a building;
- (g) work required by regulation 22 (requirements relating to a change of energy status);
- (h) work required by regulation 23 (requirements relating to thermal elements);
- (i) work required by regulation 28 (consequential improvements to energy performance).
- (2) An alteration is material for the purposes of these Regulations if the work, or any part of it, would at any stage result—
 - (a) in a building or controlled service or fitting not complying with a relevant requirement where previously it did; or
 - (b) in a building or controlled service or fitting which before the work commenced did not comply with a relevant requirement, being more unsatisfactory in relation to such a requirement.
- (3) In paragraph (2) “relevant requirement” means any of the following applicable requirements of Schedule 1, namely—
 - Part A (structure)
 - paragraph B1 (means of warning and escape)
 - paragraph B3 (internal fire spread—structure)
 - paragraph B4 (external fire spread)
 - paragraph B5 (access and facilities for the fire service)

- *Part M (access to and use of buildings).*

Renovation/Replacement of thermal elements - *Where renovating or replacing thermal elements to a building regulation 23 of Part L of the building Regulations will apply where;*

(1) Where the renovation of an individual thermal element—

(a) constitutes a major renovation; or

(b) amounts to the renovation of more than 50% of the element's surface area; the renovation must be carried out so as to ensure that the whole of the element complies with paragraph L1(a)(i) of Schedule 1, in so far as that is technically, functionally and economically feasible.

(2) Where the whole or any part of an individual element is proposed to be replaced and the replacement—

(a) constitutes a major renovation; or

(b) (in the case of part replacement) amounts to the replacement of more than 50% of the thermal element's surface area; the whole of the thermal element must be replaced so as to ensure that it complies with paragraph L1(a)(i) of Schedule 1, in so far as that is technically, functionally and economically feasible.

Responsible Person - *The 'responsible person' who has a number of legal duties under the Regulatory Reform (Fire Safety) Order 2005 is defined in Article 3 as;*

(a) in relation to a workplace, the employer, if the workplace is to any extent under his control;

(b) in relation to any premises not falling within paragraph (a)—

(i) the person who has control of the premises (as occupier or otherwise) in connection with the carrying on by him of a trade, business or other undertaking (for profit or not); or

(ii) the owner, where the person in control of the premises does not have control in connection with the carrying on by that person of a trade, business or other undertaking.

Typically, the responsible person is the freeholder or landlord but may be a residential management company.

6.0 CONCLUSIONS

Extent of Facade Survey and Investigation - General Limitations

Ark have provided this report based upon the information gained through documents sighted and provided by the client, during discussions with Client's representatives and site visits/investigations. Although Ark's Consultants are experienced and trained to the highest professional standards, they have no powers under any statutory order to demand entry and the production of documents or information. The advice in the report is therefore given in good faith based upon the evidence seen, the information given and the points discussed at the time of the visits. No guarantee can be given that during any subsequent visit by inspectors with statutory powers other non-compliance may not be found. Ark will not accept responsibility for any loss arising from such a discovery. Whilst every care is taken to interpret the Acts, Regulations and Approved Codes of Practice, these can only be authoritatively interpreted by Courts of Law.

As part of this consultancy project, Ark may have had access to client information which is of a confidential or sensitive nature. Such information will be treated in the strictest confidence by Ark and will not be communicated or otherwise transmitted to a third party unless expressly authorised to do so by the Client.

Signed By:		
Name:	Andrew Gough	
Professional Memberships and Registrations:	BSc (Hons) MICWCI ICIOB	Building Surveying Member of the Institute of Clerk of Works and Construction Inspectorate Incorporated Member of the Chartered Institute of Building
Dated:	13.11.2020	

Signed By:		
Name:	David Hills	
Professional Memberships and Registrations:	Fellow – Royal Institute of Chartered Surveyors, Fellow – International Institute of Risk and Safety Managers Member - Institution of Fire Engineers Registered Safety Practitioner	
Dated:	15.11.2020	

APPENDICES

Appendix A – Intrusive Survey Report

Appendix B - Normative References

Appendix C - Chartered Fire Engineer MHCLG Advice Report

Appendix A – Intrusive Survey Report

Activity	External Façade Investigation and Survey (Intrusive)
Location	Boatmans, 42 City Road East, Manchester, M15 4QF
Author	Sebastian Luszczuk
Date	22/09/2020
Project Reference	ASLPR200321 J000008
Document Type	Survey Record V1.71

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Survey Background

Ark Sustainability Ltd (Ark) has been instructed to undertake investigations of the external façade of Boatmans, 42 City Road East, Manchester, M15 4QF to support meeting the requirements of the Ministry of Housing Communities and Local Government (MHCLG) current guidance regarding external façade and cladding systems.

Following the publication of the Building (Amendment) Regulations 2018 (S.I. 2018/1230) banning certain cladding materials, there is a clear need for owners to determine the suitability and sufficiency of the materials used in the external façade construction and importantly whether or not the external facades are meeting the recommendations contained within the said advice notes and guidance.

Survey Objectives

1. To recover samples from the facade which will then be sent for testing at a UKAS laboratory to determine their composition as per RAMS.
2. To conduct further intrusive investigation using a video borescope and gather photographic and contemporaneous notes
3. To gather sufficient information to determine the composition of the facade which will then be used along with the laboratory test results to ascertain the correct category of EWS1 to issue.

Survey Scope

This record specifically relates to the external cladding system and its component parts and is no way intended to provide a determination of the 'as built' structure of the building under review. However, where appropriate this may be commented upon.

Survey Limitations

Please use this section to highlight any physical limitations to the survey which occurred and why these limitations existed.

It was only possible to access the front elevations at all levels and the rear elevation at ground level as no vehicular rear access is possible at the site.

Personnel Details:

Sebastian Luszczuk MSc MCABE

Observers:**Date of Survey: 21/09/2020**

Time on Site: 8:30am

Time Site Survey Completed: 2pm

Weather Conditions

Temperature: 22

Light conditions: Sunny

Humidity: Low

Wind conditions: Mild

Pre-start Checks

1. Obtain permission/license from Barking for the use of Lift Access Platform on Pavement and on the public roads where applicable.
2. Confirmation from The building management company that residents/leaseholders and any affected businesses will be advised of the survey work and the possibility of noise/disruption during the course of the investigation.
3. Review RAMS for proposed work.
4. Ensure MEWP Operator has appropriate license / approval to operate
5. Ensure MEWP operator has undertaken daily and other regular checks.
6. Ensure ladders (where appropriate) have been inspected
7. Ensure fall and arrest harnesses have been inspected and are serviceable.
8. Ensure access equipment protective barriers are available to protect pedestrians.
9. Check Building Contractor Site Rules and Procedures.
10. Ensure adequate and appropriate PPE is available.
11. Ensure that Sample location plan is available.
12. Ensure that appropriate equipment is available for sampling and removal of facade elements.

Sequence of Operations / Statement

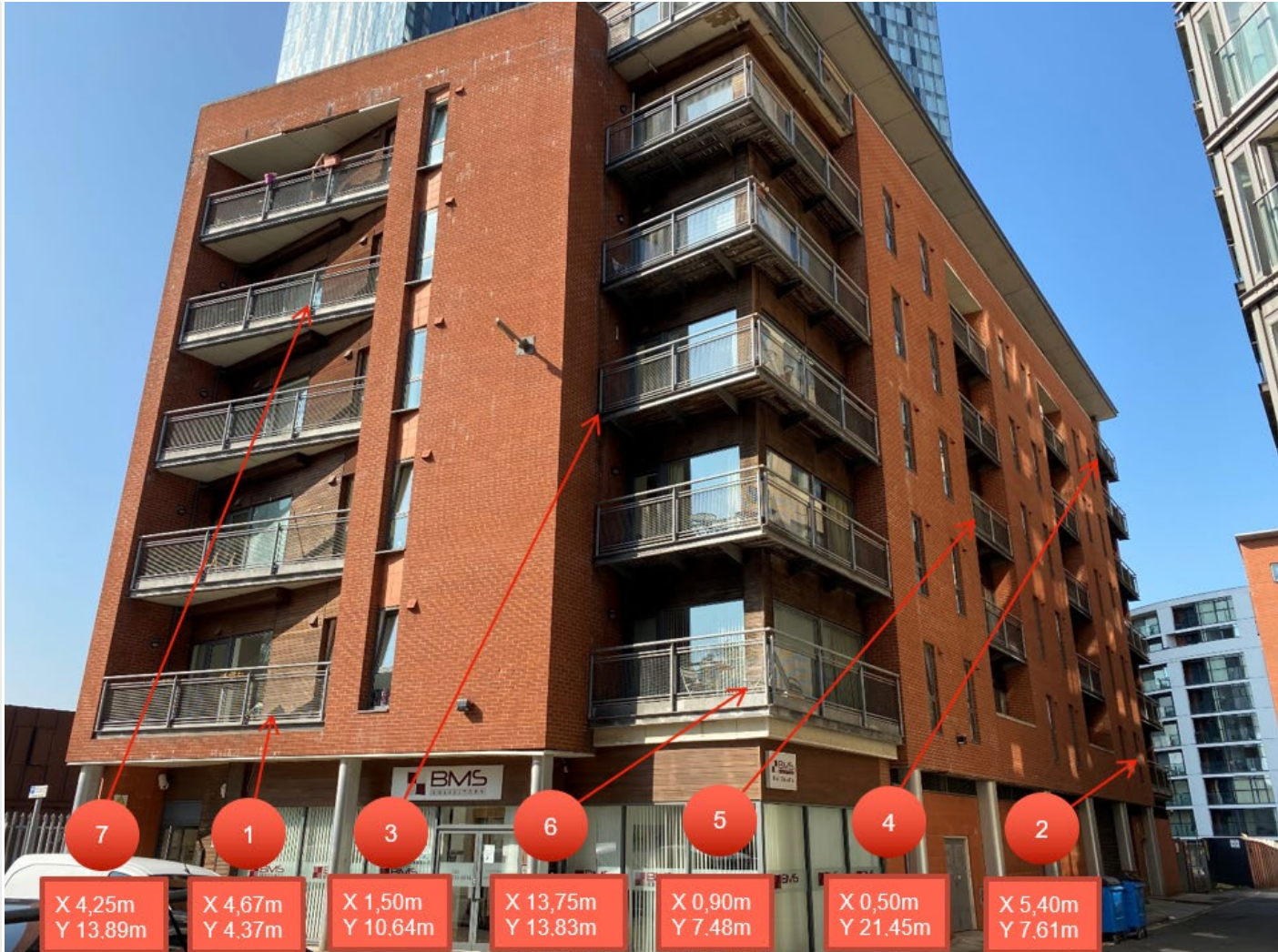
ALL ELEVATIONS

13. Please note any obvious existing physical damage to the external facade which was observed prior to the survey (include photographs and detail their location)
14. Undertake all pre start checks.
15. Establish Cordon and Safety Barriers in Pavement area.
16. Ensure MEWP is safe to use and competent operator on site and available.
17. Ensure access route for MEWP is safe and secured to prevent unauthorised access – check to ensure safety of all concerned.
18. VR operative to operate and provide access for Consultant to the joint areas to allow for inspection.
19. Undertake inspection of wall – joints (between party wall and ceiling, party wall and roof cladding, party wall and external wall, party wall and party wall).
20. PPE to be utilised.
21. Expose area of inspection.
22. Ark to complete inspection off Ladder/MEWP as above to determine construction and integrity of external façade, wall and fire stopping etc.
23. Remove and record and store sample evidence including recording sample sites upon survey map.
24. Place inspection covers in sample holes where appropriate.
25. Lower and remove MEWP access equipment and remove protective barriers.

26. Hand back area to client.

Observations of Areas of Existing Damage

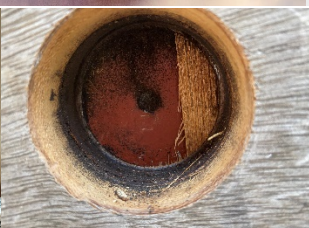
No damages to external fabric were noted during the survey.

ELEVATION	EXAMPLE PHOTO														
Front / Side	 <table data-bbox="456 1283 1621 1361"><tr><td>7</td><td>1</td><td>3</td><td>6</td><td>5</td><td>4</td><td>2</td></tr><tr><td>X 4,25m Y 13.89m</td><td>X 4,67m Y 4.37m</td><td>X 1,50m Y 10.64m</td><td>X 13,75m Y 13.83m</td><td>X 0,90m Y 7.48m</td><td>X 0,50m Y 21.45m</td><td>X 5,40m Y 7.61m</td></tr></table>	7	1	3	6	5	4	2	X 4,25m Y 13.89m	X 4,67m Y 4.37m	X 1,50m Y 10.64m	X 13,75m Y 13.83m	X 0,90m Y 7.48m	X 0,50m Y 21.45m	X 5,40m Y 7.61m
7	1	3	6	5	4	2									
X 4,25m Y 13.89m	X 4,67m Y 4.37m	X 1,50m Y 10.64m	X 13,75m Y 13.83m	X 0,90m Y 7.48m	X 0,50m Y 21.45m	X 5,40m Y 7.61m									

Survey Record

Sample No	Date/Time	X Axis	Y Axis	Datum Point	Photographs	Observations
1	21/09/2020	4,67m	4,37m	Left Hand Side Corner		19mm Timber clad, 25mm clear cavity, 100mm blockwork, 100mm void No thermal insulation present in the wall. Investigation with endoscope showed no cavity barriers between ground and 1st floor.
2	21/09/2020	5,40m	7,61m	Right Hand Side Corner		100mm brickwork, 150mm wool full fill insulation

Sample No	Date/Time	X Axis	Y Axis	Datum Point	Photographs	Observations
3	21/09/2020	1,50m	10,64m	Left Hand Side Corner	 	100mm brickwork, 150mm wool full fill insulation
4	21/09/2020	0,50m	21,45m	Right Hand Side Corner	  	19mm Timber clad, 25mm clear cavity, 100mm blockwork, 215mm void No thermal insulation present in the wall.

Sample No	Date/Time	X Axis	Y Axis	Datum Point	Photographs	Observations
5	21/09/2020	0,90m	7,48m	Left Hand Side Corner	 	100mm brickwork, 20mm cavity, 130mm wool insulation
6	21/09/2020	13,75m	13,83m	Right Hand Side Corner	 	30mm timber clad, steel panel
7	21/09/2020	4,25m	13,89m	Left Hand Side Corner	 	19mm Timber clad, 25mm clear cavity, 100mm blockwork, 100mm wool insulation

Survey Notes

Contemporaneous Survey Notes

Two different external cladding and compositions are present over the external façade of the building:

- 19mm Timber clad, 25mm clear cavity and 100mm blockwork to external skin of cavity wall
- 100mm brickwork, 150mm wool insulation

Endoscope investigation showed no thermal insulation to the external wall by the samples 1 and 7. It was noted no horizontal cavity barrier between ground and 1st floor by the borehole 1.

By the samples 2 and 5 cavities was not fully filled with wool insulation.

Balconies & Attachments

Note: Please include photographs and notes of any balconies and attachments observed during the survey.

ELEVATION	Photograph	Observations & Notes
Front / Side		Balconies of concrete structure with timber decking are present on the building (see photograph)

Typical Composition

Wall Type 1

#id	Material (External Inwards)	Thickness	Combustibility	Reference
1	Timber clad	19mm		
2	Cavity	25mm	N/A	
3	Blockwork	100mm	N/A	
4	Wool Insulation	100mm		

Wall Type 2

#id	Material (External Inwards)	Thickness	Combustibility	Reference
1	Brickwork	100mm	N/A	
2	Wool Insulation	150mm		

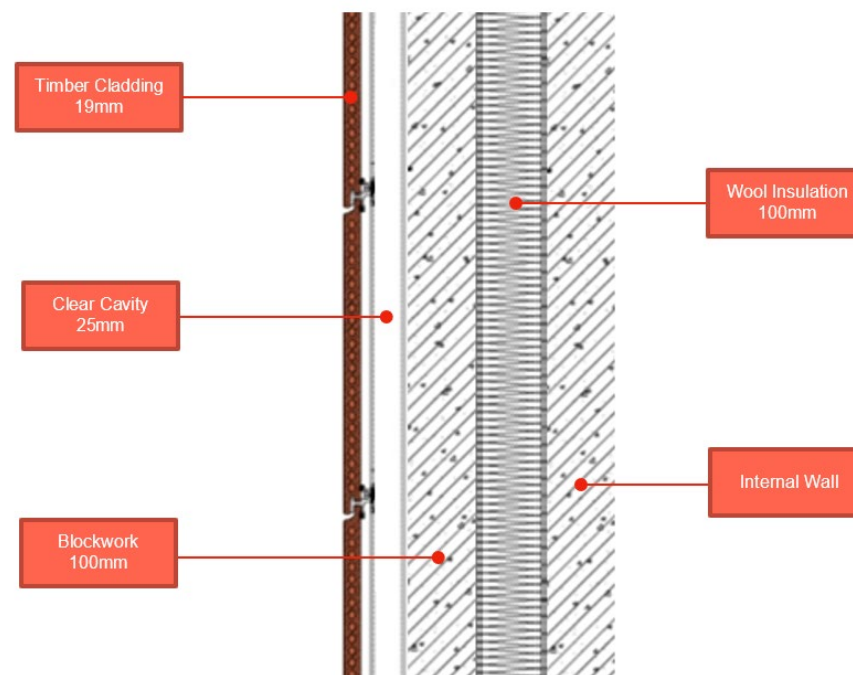
In addition to the various wall types, the following attachments to the façade were noted:

Attachment Type 1

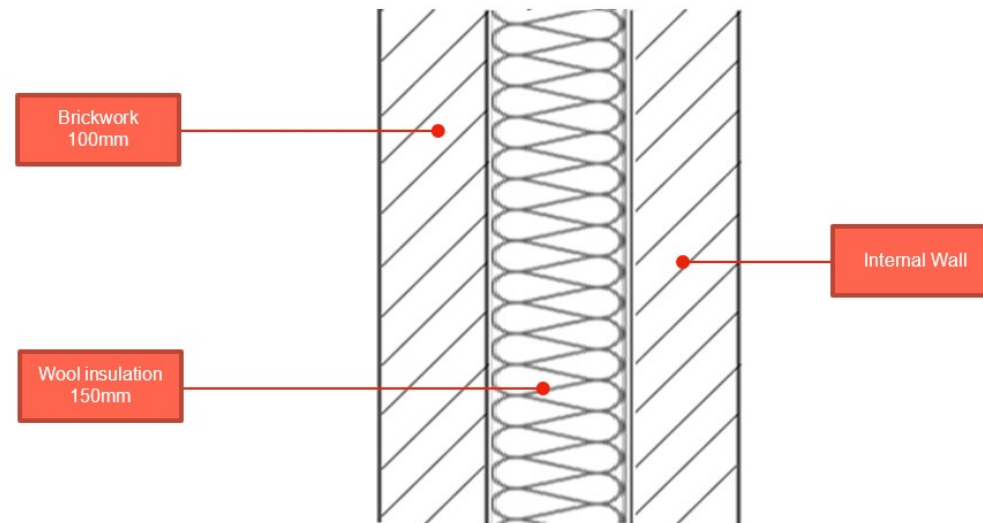
#id	Attachment	Construction	Combustibility	Reference
1	Balcony	Concrete structure with timber decking	NA	-

The typical composition of the facade was observed as being the following:

- 19mm Timber clad, 25mm clear cavity, 100mm blockwork, 100mm wool insulation



- 100mm brickwork, 150mm wool insulation



PLEASE INCLUDE DESCRIPTION AND SKETCH

Sample Testing

Please complete ASL Sample Testing Form.

Photographic Evidence Location

Photographic evidence and contemporaneous notes and facade investigation and survey record were uploaded to file location.

Name:

Signed:

Position:

Dated:

END OF REPORT

Appendix B - Normative References

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Standards Publications

British Standards Institution, BS 476 (all parts), Fire tests on building materials and structures, London: BSI.

British Standards Institution (2005) BS 4422 Fire Vocabulary, London: BSI.

British Standards Institution (1970) BS 476-4 Fire tests on building materials and structures - Part 4: Non-combustibility test for materials, London: BSI.

British Standards Institution (1982) BS 476-11 Fire tests on building materials and structures. Method for assessing the heat emission from building materials, London: BSI.

British Standards Institution (1991) BS 476-12 Fire tests on building materials and structures - Part 12: Method of test for ignitability of products by direct flame impingement, London: BSI.

British Standards Institution (1997) BS476-7 Fire tests on building materials and structures: Part 7. Method of test to determine the classification of the surface spread of flame of products, London: BSI.

British Standards Institution (1997) BS476-23 Fire tests on building materials and structures - Part 23: Methods for determination of the contribution of components to the fire resistance of a structure, London: BSI.

British Standards Institution (1987) BS 476 - 22 Fire tests on building materials and structures - Part 22: Methods for determination of the fire resistance of non-load bearing elements of construction, London: BSI.

British Standards Institution (1987) BS 476 - 21 Fire tests on building materials and structures - Part 20: Method for determination of the fire resistance of elements of construction (general principles), London: BSI.

British Standards Institution (1987) BS 476 -21 Fire tests on building materials and structures - Part 21: Methods for determination of the fire resistance of load bearing elements of construction, London: BSI.

British Standards Institution (2020) BS 8414-1 Fire performance of external cladding systems – Part 1: Test methods for non-load bearing external cladding systems applied to the face of a building, London: BSI.

British Standards Institution (2020) BS 8414-2, Fire performance of external cladding systems – Part 2: Test method for non-load bearing external cladding systems fixed to and supported by a structural steel frame, London: BSI.

British Standards Institution (2005) BS 6262-3: 2005 Glazing for buildings - Part 3: Code of practice for fire, security and wind loading, London: BSI.

British Standards Institution (2013) BS 8524-1/BS8524-2 (both parts), Active fire curtain barrier assemblies, London: BSI.

British Standards Institution (2014) BS 9251:2014, Sprinkler systems for residential and domestic occupancies - Code of practice, London: BSI.

British Standards Institution (2015) BS 9990:2015 Non automatic fire-fighting systems in buildings, Code of practice, London: BSI.

British Standards Institution (2017) BS 9999:2017 Code of practice for fire safety in the design, management and use of buildings, London: BSI.

British Standards Institution (2015) BS9991 Fire Safety in the design, management and use of residential buildings. Code of practice, London: BSI.

British Standards Institution BS EN 3 (all parts), Portable fire extinguishers, London: BSI.

British Standards Institution BS EN 81 (all parts), Safety rules for the construction and installation of lifts, London: BSI.

British Standards Institution (1997) BS EN 1154, Building hardware – Controlled door closing devices – Requirements and test methods, London: BSI.

British Standards Institution BS EN 1363 (all parts), Fire resistance tests, London: BSI.

British Standards Institution BS EN 1364 (all parts), Fire resistance tests for non-load bearing elements, London: BSI.

British Standards Institution BS EN 1365 (all parts), Fire resistance tests for load bearing elements, London: BSI.

British Standards Institution BS EN 1366 (all parts), Fire resistance tests for service installations, London: BSI.

British Standards Institution (2018) BS EN 1634-1, Fire resistance tests for door and shutter assemblies – Part 1: Fire resistance test for door and shutter assemblies and openable windows, London: BSI.

British Standards Institution (2004) BS EN 1634-3:2004, Fire resistance tests for door and shutter assemblies – Part 3: Smoke control test for door and shutter assemblies, London: BSI.

British Standards Institution BS EN 12101 (all parts), Smoke and heat control systems, London: BSI.

British Standards Institution (2019) BS EN 12845:2015 + A1:2019 Fixed firefighting systems – Automatic sprinkler systems – Design, installation and maintenance, London: BSI.

British Standards Institution (2018) BS EN 16925:2018 Fixed firefighting systems - Automatic residential sprinkler systems - Design, installation and maintenance, London: BSI.

British Standards Institution BS EN 13501 (all parts), Fire classification of construction products and building elements, London: BSI.

British Standards Institution (2020) BS EN 13823, Reaction to fire tests for building products – Building products excluding floorings exposed to the thermal attack by a single burning item, London: BSI.

British Standards Institution (2020) BS EN ISO 1182, Reaction to fire tests for building products – Non combustibility test, London: BSI.

British Standards Institution (2018) BS EN ISO 1716, Reaction to fire tests for products – Determination of the gross heat of combustion (calorific value), London: BSI.

British Standards Institution (2015) BS 8458:2015 - TC Tracked Changes. Fixed fire protection systems. Residential and domestic water-mist systems. Code of practice for design and installation, London: BSI.

British Standards Institution (2019) BS 7974:2019 Application of fire safety engineering principles to the design of buildings. Code of practice, London: BSI.

British Standards Institution (2019) PD 7974-1:2019 Application of fire safety engineering principles to the design of buildings. Initiation and development of fire within the enclosure of origin (Sub-system 1), London: BSI.

British Standards Institution (2019) PD 7974-2:2019 Application of fire safety engineering principles to the design of buildings. Spread of smoke and toxic gases within and beyond the enclosure of origin (Sub-system 2), London: BSI.

British Standards Institution (2019) PD 7974-3:2019 Application of fire safety engineering principles to the design of buildings. Structural response to fire and fire spread beyond the enclosure of origin (Sub-system 3), London: BSI.

British Standards Institution (2003) PD 7974-4:2003 Application of fire safety engineering principles to the design of buildings. Detection of fire and activation of fire protection systems. (Sub-system 4), London: BSI.

British Standards Institution (2014) PD 7974-5:2014 Application of fire safety engineering principles to the design of buildings. Fire and rescue service intervention (Sub-system 5), London: BSI.

British Standards Institution (2019) PD 7974-6:2019 Application of fire safety engineering principles to the design of buildings. Human factors. Life safety strategies. Occupant evacuation, behaviour and condition (Sub-system 6), London: BSI.

British Standards Institution (2019) PD 7974-7:2019 - TC Tracked Changes. Application of fire safety engineering principles to the design of buildings. Probabilistic risk assessment, London: BSI.

British Standards Institution (2019) PD 7974-7:2019 Application of fire safety engineering principles to the design of buildings. Probabilistic risk assessment, London: BSI.

British Standards Institution (2020) BS 8579:2020 Guide to the design of balconies and terraces, London: BSI.

Other Publications

Baker, T. & Colwell, S. (2013) BR 135: fire performance of external thermal insulation for walls of multi-storey buildings (3rd ed.), Watford: IHS BRE Press.

Building Regulations 2010. approved document B1, July 2019. Approved Document B (Fire safety) – Volume 1: Dwellings (2019 edition), London: HM Government.

Building Regulations 2010. approved document B2, July 2019. Approved Document B (Fire safety) – Volume 2: Buildings other than dwellings (2019 edition), London: HM Government.

Building Regulations 2010 - Amendments to the Approved Documents (May 2020) London: HM Government.

Drysdale, D. (2011) *An Introduction to Fire Dynamics (3rd Ed.)*, Chichester: Wiley.

Regulatory Reform (Fire Safety) Order 2005, UK Statutory Instrument no.1541, HM Government.

IFE Member Guidance Note 1 'POST GRENFELL WORK STREAM: External Wall Fire Review Process'.

LCPB (2014) Loss Prevention Standard LPS 1581: Issue 2.1 Requirements and tests for LPCB approval of non-load bearing external cladding systems applied to the masonry face of a building, Watford: BRE Global.

LCPB (2014) Loss Prevention Standard LPS 1582: Issue 1.1, Requirements and tests for LPCB approval of non-load bearing external cladding systems fixed to and supported by a structural steel frame, Watford: BRE Global.

McLaggan, M., Hidalgo, J., Osorio, A., Heitzmann, M., Carrascal, J., Lange, D., Maluk, C. and Torero, J. (2019) Cladding Materials Library: Data Collection. <https://doi.org/10.14264/uql.2019.441>

RICS (2020) <https://www.rics.org/globalassets/rics-website/ews1-external-wall-fire-review-final-2.pdf>

The Building Regulations 2010, Statutory Instrument no 2214, HM Government.

Appendix C - Chartered Fire Engineer MHCLG Advice Report

Ark Sustainability Limited
**Boatmans, 42 City Road East,
Manchester M15 4QF**
External wall / cladding system

REP/012

Report | 17 November 2020



This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 2020-12

buroashe Limited
NI 667620



Document Verification

Job title		Boatmans, 42 City Road East, Manchester M15 4QF		Job number		2020-12	
Document title		External wall / cladding system		File reference		J000008	
Document ref		REP/012					
Revision	Date	Filename	Determination against MHCLG advice				
Draft 1	12 Nov 2020	Description	Draft for review by Ark Sustainability				
			Prepared by	Checked by	Approved by		
		Name	Brian Ashe		Brian Ashe		
		Signature					
Report	17 Nov 2020	Filename	Determination against MHCLG advice				
		Description	Report to Ark Sustainability				
			Prepared by	Checked by	Approved by		
		Name	Brian Ashe		Brian Ashe		
		Signature					
		Filename					
		Description					
			Prepared by	Checked by	Approved by		
		Name					
		Signature					
		Filename					
		Description					
			Prepared by	Checked by	Approved by		
		Name					
		Signature					

Issue Document Verification with Document
☒

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1 Scope

Based on the evidence listed in Section 3, the scope of this report is to determine whether the external wall / cladding systems used on Boatmans, 42 City Road East, Manchester M15 4QF satisfies the MHCLG advice (January 2020)¹ which addresses the measures building owners should take to review ACM and other cladding systems to assess and assure their fire safety, and the potential risks to residents of external fire spread. This determination focuses on external wall / cladding and does not address other fire safety issues of the MHCLG advice, such as fire doors and smoke ventilation.

In addition, based on the determination against the MHCLG advice the EWS1² form has been completed.

2 Author – Dr Brian Ashe CEng

2.1 Education

- PhD Faculty of Science, Macquarie University, Australia, 2012.
- MSc (distinction), Fire Safety Engineering, University of Ulster, Northern Ireland 1997.
- BSc (Hons), first class, Construction Management and Engineering, WIT, Ireland 1993.

2.2 Professional Membership

- Chartered Engineer (through IFE), Engineering Council (CEng), UK (2005-current).
- Society of Fire Protection Engineers (SFPE), USA – Member (2000-current).
- Institute of Fire Engineers (IFE), UK – Member (2005-current).
- Society of Risk Analysis (SRA), USA – Member (2008-current).
- Chartered Institute of Building (CIOB), UK – Member (1997-2015).

¹https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/869532/Building_safety_advice_for_building_owners_including_fire_doors_January_2020.pdf

² <https://www.rics.org/globalassets/rics-website/ews1-external-wall-fire-review-final-2.pdf>

3 Evidence

The determination is based on the review of the following documents provided for this purpose:

1. Worksafe Solutions Consultancy Limited (2019) *Fire Risk Assessment Report – The Boatmans, 42 City Road East, Manchester M15 4QF*. (26th November 2019).
2. Ark Sustainability (2020) *Facade Survey Assessment Report (Incl. EWS1 Determination)- Boatmans, 42 City Road East, Manchester M15 4QF* Project Reference J000008/ASLP200321 (6 November 2020).
3. Ark Sustainability (2020) *External Facade Investigation and Survey (Intrusive)- Boatmans, 42 City Road East, Manchester M15 4QF*, Project Reference ASLPR 200321 (29 September 2020).
4. Sandberg (2020) Report 68451/C *Boatmans, 42 City Road East, Manchester M15 4QF - Analysis of Cladding & Insulation Samples* (4 November 2020).
5. Sandberg (2020) Report 68451/C1 *Boatmans, 42 City Road East, Manchester M15 4QF - Analysis of Cladding & Insulation Samples* (5 November 2020).

3.1 External wall / cladding

Based on the Ark Sustainability reports, although some uncertainty does exist, it is likely that the external wall / cladding and attachments is as described in the Ark Sustainability reports. Generically described as:

- Type 1 - Masonry wall (brick outer leaf, soda-lime silicate glass wool insulation, blockwork (assumed) (unknown thickness)³
- Type 2 – Built-up wall (Timber cladding, membrane, clear cavity, blockwork, soda-lime silicate glass wool insulation, blockwork)⁴
- Type 3 – Built-up wall (Clay Blockwork (Unknown Thickness), Internal Structure (Unknown Composition / Thickness).
- Attachments – Balconies (Metal (Steel Assumed) structure, metal handrail and posts with mesh metal grille balustrade. Timber decks.

The systems and materials assumed are based on the intrusive survey's and sample testing. The sample testing did not identify any elements which could improve the reaction to fire of the timber cladding or timber decking.

As built' design drawings and construction specifications were not available for reference at the time of authoring this report and therefore it is not possible to fully clarify the design intention with regards to cavity barrier design.

The intrusive investigation survey indicated that the construction of the façade utilises a full cavity fill insulation type which under current and past Building

³ CWCT/SFE September 2020

⁴ CWCT/SFE September 2020

Regulations does not require cavity barriers on compartment lines due to the limited potential for fire spread within a fully filled cavity. However, it must be noted that sample locations 1 and 4 revealed a lack of thermal insulation within the associated cavity wall and as such, a clear cavity could allow for unseen fire spread between compartments. The extent of missing thermal wall insulation was not surveyed.

There is not sufficient evidence to determine both the presence and adequacy of cavity barrier arrangements for the entire / whole of the building.

3.2 Related fire safety matters

A 'stay put' (protect in place) evacuation strategy is assumed to be adopted for the Boatmans, 42 City Road East, Manchester M15 4QF. The fire risk assessment is silent on this matter.

4 Determination

Diagram 1 of the MHCLG advice outlines the process chart for assessing external wall systems. This process has been used to determine if the materials / systems used in the external wall system is appropriate from a fire risk perspective on Boatmans, 42 City Road East, Manchester M15 4QF:

- Process question 1: *Is your external wall insulation of European Class A2-s3,d2 or better?* **NO**. Vertical timber cladding and timber decking on balconies.
- Process question 2: *Is your external wall system in line with one that has achieved a BR135 classification via a BS8414 test?* **NO**.

As a result of answers to these questions, MHCLG advice recommends the following:

Seek urgent professional advice on the measure(s) that need to be taken to ensure that the external walls meet an appropriate standard of fire safety. This may involve the replacement of some or all of the materials in the external wall. As part of the development of these measures, assess whether cavity barriers and fire stopping have been installed correctly, and whether the system has been maintained appropriately. Consider whether short-term interim safety measures are required. Carry out any remedial works required and update your fire risk assessment following the works.

5 Discussion

Boatmans, 42 City Road East, Manchester M15 4QF consists of seven storeys, with car parking, pedestrian residential entrance, service areas and a commercial unit to the ground floor with 29 residential flats spread over first to sixth floor levels. A large open communal courtyard is located at first floor level looking towards the new Deansgate Square Development with a second large communal terrace being located at sixth floor level to the front of the building overlooking City Road East. The Finished Floor Level (FFL) of the uppermost storey has been calculated as being 20 metres above ground level.

From the results of the intrusive survey, the timber cladding and the timber decking on the balconies present the greatest risk of external fire spread.

Generically, the Type 1 system which covers the vast majority of the elevations is masonry wall with soda-lime silicate glass wool insulation. From the intrusive survey insulation not present in all areas and not fulfill in all areas (clear cavity). There is not sufficient evidence to determine both the presence and adequacy of cavity barrier arrangements for the whole building.

From the evidence available the Type 2 system in numerous areas (balcony areas) is a built-up wall which is timber clad. The building design and the stacking of balconies (with timber decking and cladding) from level 1 to level 6, presents a ready path for rapid external fire spread on sustained ignition and presents the highest risk from the perspective of external fire spread.

It is assumed that a defend in place (stay put) evacuation strategy is implemented. This strategy is based on a high degree of compartmentation and therefore a low probability exists that there will be fire spread beyond the flat of origin. The presence of the Type 2 timber clad built-up wall, lack of adequate cavity barriers on the Type 1 system and the timber decking on the balconies may negate the assumption of adequate compartmentation.

The risk of an external fire (deliberate or accidental) igniting the Type 2 and timber decking on balconies cannot be discounted and needs to be mitigated.

6 Recommendations

Given the evidence available and summarised above, the following recommendations are made to mitigate the fire risks to an acceptable level:

6.1 Short-term actions (within one month)

- Building owners to inform fire and rescue service to the nature of the external wall / cladding system and balcony timber decking.
- Review fire risk assessment given the nature of the external wall cladding / system and timber decking, in particular to determine whether the stay put (defend in place) strategy is appropriate to mitigate the risks in accordance with the NFCC⁵ guidance. If the stay put strategy is not appropriate to mitigate the risk, the NFCC⁶ guidance should be considered in terms of the necessary actions.
- Strategies to minimise the likelihood of an external fire igniting the timber cladding and timber decking should be implemented. All ignition sources (such as smoking, BBQ, heaters) should be removed from balconies. Given the location and orientation of the timber cladding / timber decking, restriction on the use of the balconies should be considered until the timber is removed.

⁵ <https://www.nationalfirechiefs.org.uk/Simultaneous-evacuation-guidance>

⁶ <https://www.nationalfirechiefs.org.uk/Simultaneous-evacuation-guidance>

- Timber cladding is also located at street level (ground floor). The ignition risk from arson, commercial occupancies, car park and air-conditioning units should also be considered.

6.2 Medium-term actions (within three months)

Given the MHCLG advice options available to demonstrate the external wall / cladding system meets the MHCLG advice are limited.

All actions come with varying levels of uncertainty and cost. Further evaluation of these actions in terms of uncertainty and cost is required to aid decision-making and not covered by this report.

- **Action 1:** Given the risk of external fire spread, priority should be given to replacing timber cladding (Type 2) and timber decking with elements that meet the MHCLG advice, primarily materials that achieve Class A2-s3,d2 or better to demonstrate external wall / cladding system meets the MHCLG advice.
- **Action 2:** A detailed survey of the effected areas (Type 1) must be undertaken to identify the as build construction and the necessary cavity barriers / firestopping as required by Approved Document B should be included.
- **Action 3:** Due to the limited details available on the Type 3 external wall at ground level, an additional intrusive survey is needed to establish details.

6.3 Long-term action (within 12 months)

The government is bringing forward fundamental changes in the draft Building Safety Bill that will improve building and fire safety. The government accepted the Hackitt review's recommendations and the draft Building Safety Bill, which, alongside the existing Fire Safety Bill and fire safety consultation will set out how they are bringing forward those proposals to provide the biggest changes to building safety in nearly 40 years.

Given that the Building Safety Bill is highly likely to be legislated over the next 1-2 years, it is recommended that the actions undertaken should ensure that Boatmans will be in a position to demonstrate structural and fire safety against the new legislation and regulations such as:

- Development of a Safety Case.
- Collection and presentation of the necessary building information in a digital format.

6.4 EWS1 form

Based on the findings contained in this report I have concluded that an **adequate standard of safety is not achieved**, and I have identified to the client organisation the remedial and interim measures required. Determination = **B2**.