Fire Risk Appraisal of the External Walls (PAS 9980:2022)

Façade Building

55 Advent Avenue,
Manchester, M6 8YU

Valid Between	13/10/2023 - 13/10/2024
Assessed By	Byron Cheetham-Cox
Assessed On	13/10/2023
Approved By	Byron Cheetham-Cox
Approved On	10/06/2024
Assessment Ref.	RB-HPZTBW
Version	12

Blueprint FRAEW

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Summary

Fire Risk Appraisal of the External Walls (PAS 9980:2022)

Assessment and Certificate Reference
RB-HPZTBW

Assessed On, By
13/10/2023, Byron Cheetham-Cox

Approved / Validated On, By
10/06/2024, Byron Cheetham-Cox

Start Date — Recommended Review Date
13/10/2023 — 13/10/2024

Findings
4 Actions

Produced For the Responsible Person
Blueprint (FRAEW)

Specification Conforms To
Our own internal quality system.

Assessment Scope
PAS9980

Assessed Property

Property Name
Façade Building

Property Reference
9980:2022

Address
55 Advent Avenue
Manchester
M6 8YU

Assessing Organisation
Blueprint (FRAEW)

Introduction

PAS 9980

PAS 9980, which came into effect on 31st January 2022, provides guidelines for the fire risk appraisal of external wall construction and cladding of existing blocks of flats. It sets out several objectives to achieve in this process:

1. **Methodology for Fire Risk Appraisal**: PAS 9980 aims to provide competent fire engineers and other building professionals with a structured methodology to appraise and assess the scope and risk of fire spread through external wall construction and cladding. This information is intended to be used in a building's Fire Risk Assessment (FRA).
2. **Clear Communication**: The standard aims to assist external wall assessors in clearly communicating the results of a Fire Risk Appraisal of External Wall (FRAEW) so that recipients can understand the process, methodology, and findings.
3. **Support for Professionals**: PAS 9980 intends to support other professionals in reviewing an FRAEW and understanding the risks associated with external fire spread within the context of a building's fire strategy and safety arrangements.
4. **Promoting Understanding**: The standard seeks to promote a better understanding of fire risks associated with external walls and to clarify the limitations of what can and cannot be achieved through an FRAEW.
5. **Common Terminology**: It aims to establish common, relevant terminology to be used by those conducting FRAEWs, promoting consistency in language and understanding.
6. **Consistency in FRAEWs**: PAS 9980 promotes consistency in the Fire Risk Appraisal of External Walls and suggests a pragmatic and risk-proportionate approach in the process. This consistency is expected to enhance training and increase the number of professionals in this field.

The risk assessment process outlined in PAS 9980 includes considering various risk factors, and these factors are assessed to determine their influence on the overall risk associated with the external wall system and its attachments. These risk factors are categorized into three main areas:

1. **Fire Safety**: Strategy & Hazards Risk Factors: These are evaluated for the entire property as a whole.
2. **Materials Performance Risk Factors**: These are assessed for each specific external wall type and attachment, and they are discussed in relevant sections of the report.
3. **Façade Configuration Risk Factors**: These risk factors are evaluated for the entire property as a whole.

The methodology outlined in PAS 9980 is risk-based and structured to determine whether the external wall construction is acceptable or whether remedial actions are necessary, such as replacing components of the external wall build-up or addressing shortcomings, like the absence of cavity barriers, to mitigate fire risks.

Supporting Documents

The following documentation was requested for review prior to our visit. Any provided documentation has been reviewed and considered as part of our findings. The range, quality and reliability of the information contained in the provided documents have been examined and deemed satisfactory for completing this FRAEW report:

Document	Received
Fire Risk Assessment (10/05/2023) Reece Cox (Fire Fit)	Received
Compartmentation Survey (26/06/2023) Johan Webber	Not Received
Fire Strategy	
O&M Documentation	
Door Survey	
Risk Register	

Executive Summary

External Wall Systems and Attachments on the Building

5 areas were inspected to gain data about the building's wall constructions. See the Inspections section of this report for full inspection details.

The table below outlines the ratings of the various wall systems and constructions to the property. Each element is explained in more detail further within this report.

7 Items	Effect	Risk
Wall Construction Terracotta Tile Rain-screen Cladding (2L55CQ) 1 Remediation	Positive	Medium
Wall Construction Zinc Rain-screen Cladding (YH98XG) 1 Remediation	Neutral	Medium
Attachment Cantilever Balcony (S248KT)	Positive	Medium
Penetration Ventilation (1S69KN)	Neutral	Low
Penetration Air Brick (6XLYNF)	Positive	Low
External Window Top, Mid, Side Hung Casements (LQ8ZS7)	Neutral	Low
External Door French Doors (MZHMBX)	Neutral	Low

In accordance with the PAS 9980 Guidance, any items of construction which are considered as “Medium Risk” should be subject to periodic review, to ensure that conditions do not change, such that the risk may be upgraded to high, prompting the requirement for remediation.

Risk Factor Analysis

The risk factor analysis is a three-stage process; rating the wall construction fire performance **(1)**, façade configuration **(2)**, and fire strategy/fire hazards **(3)** on a sliding risk scale. The risk scale is expressed as "high", "medium" and "low" in a continuum, left to right, from "high" risk to "low" risk. At the furthest left end of the "high" risk band, the risk is deemed to be the highest, reducing as the risk is positioned to the right of this.

Starting with high as a base line, **Stage 1** rates the fire performance risk factors of the wall construction.

Once fire performance factors have been taken into account, **Stage 2** overlays the risk factors of the façade configuration to determine the effect this has on where the risk now lies on the scale.

The final **Stage 3** overlays the risk factors arising from consideration of the fire strategy and fire hazards (including limitations of fire and rescue service intervention).

Risk Factor Analysis 1

This analysis looks at façade configuration **BBGZNI** which includes wall construction **2L55CQ**.

1) Impact of Risk from Fire Performance: This is a conclusion of the fire performance risk factors.

2) Impact of Risk from Façade Configuration: This is a conclusion of the impact the Façade Configuration has on the Fire Performance risk factor analysis.

3) Impact of Risk from Fire Strategy / Fire Hazards: This is a conclusion of the impact the Fire Strategy has on the anlyasis of the Fire Performance and Façade Configuration.

Conclusion: This is a conclusion of the overall Risk Factors. The impacts of the Fire Performance, Façade Configuration and Fire Strategy have been taken into account.

Low

Risk Factor Analysis 2

This analysis looks at façade configuration **94YZBW** which includes wall construction **YH98XG**.

1) Impact of Risk from Fire Performance: This is a conclusion of the fire performance risk factors.

2) Impact of Risk from Façade Configuration: This is a conclusion of the impact the Façade Configuration has on the Fire Performance risk factor analysis.

3) Impact of Risk from Fire Strategy / Fire Hazards: This is a conclusion of the impact the Fire Strategy has on the anlyasis of the Fire Performance and Façade Configuration.

Conclusion: This is a conclusion of the overall Risk Factors. The impacts of the Fire Performance, Façade Configuration and Fire Strategy have been taken into account.

Medium

Overall Building Risk Rating

Medium

Our professional opinion is that overall this Building represents a Neutral PAS9980:2022 Outcome.

2 Recommended Remediations

We recommend that remediations should be started within three months of receipt of this report.

Wall Construction: Terracotta Tile Rain-screen Cladding (2L55CQ)

It is our professional opinion that all combustible materials associated with this wall type should be removed and replaced with materials that achieve a Euroclass A2 (limited combustibility) rating or better. Instillation of cavity barriers to manufacturer's recommendation.

To remove all combustible materials from the external façade which will assist in the spread of fire over the external walls.

Wall Construction: Zinc Rain-screen Cladding (YH98XG)

It is our professional opinion that all combustible materials associated with this wall type should be removed and replaced with materials that achieve a Euroclass A2 (limited combustibility) rating or better.

To ensure that all occupants, guests, and workers can evacuate the building safely to a place of ultimate safety.

2 Recommended Interim Measures

General Interim Measures

It is recommend that the evacuation policy is changed from a "Stay Put" to a "Simultaneous/Full Evacuation Policy". All occupants should be formally informed of the change in evacuation policy and Fire Action Notices should also reflect the change, with locations of assembly points. The Fire Detection System should also be upgraded in accordance with the NFCC Guidance and a heat detector should be installed at every opening near to combustible materials on the external walls and manual call points at storey exits. The local Fire Authority should also be informed of the change of evacuation policy.

To ensure that all occupants, guests, and workers can evacuate the building safely to a place of ultimate safety.

Have a fire door survey carried out.

To ensure the fire doors operate as designed.

Fire Strategy

Strategy & Hazard Risk Factors

F.1 Occupancy

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.	Positive
This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.	Neutral
This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.	Positive
This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.	Neutral
This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.	Negative

F.2 Evacuation

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.	Neutral

F.3 Escape Route Design

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.	Negative

F.4 Compartmentation

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.	Positive

F.5 Smoke Control

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.	Neutral

F.6 Fire Alarm & Detection

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Negative

F.7 Fire Suppression

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Negative

F.8 - Firefighting Facilities

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

F.9 Rising Mains

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

F.10 Lifts Used By Firefighters

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Negative

F.11 Specific Fire Hazards

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

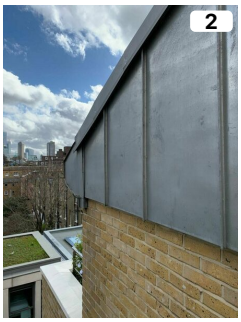
Fire Service Intervention

Event	Seconds	Minutes & Seconds
Initiation to fire detection	60 Seconds	1 Minute
Actuation Of Fire Detector To Transmission Of Alarm	70 Seconds	1 Minute 10 Seconds
Processing By Central Monitoring Station	64 Seconds	1 Minute 4 Seconds
Receipt of call by fire service mobilising control	56 Seconds	56 Seconds
Transmission To Fire Station And Response	94 Seconds	1 Minute 34 Seconds
Travelling Time Of Fire Service	655 Seconds	10 Minutes 55 Seconds
Arrival Protocol And Entry Preparation Time	120 Seconds	2 Minutes
Firefighting Travel In Firefighting Lift	180 Seconds	3 Minutes
Firefighter travel to operational bridgehead	60 Seconds	1 Minute
Firefighter Travel Walking Up Two Flights Of Stairs To Fire Floor (75 Seconds)	45 Seconds	45 Seconds
Total Time	**1,404 Seconds**	**23 Minutes 24 Seconds**

Nearest Fire Station

London Bridge Fire Station

Wall Constructions

Photo	Wall Construction	Build-up
	**Terracotta Tile Rain-screen Cladding (2L55CQ)** 1 Remediation	• Surface Finish (Terracotta Tile) • Cavity Support Frame (Galvanised Steel Horizontal Rails with Hook-on Clips) • Cavity • Other (Breather Membrane (Textile)) • Insulation (Phenolic Foam Insulation) • Other (Breather Membrane (Textile)) • Inner Leaf (Concrete Slab)
	**Zinc Rain-screen Cladding (YH98XG)** 1 Remediation	• Surface Finish (Standing Seam Zinc Sheet) • Cavity Support Frame (Plywood Backing Board) • Cavity Support Frame (Timber Batten) • Cavity • Inner Leaf (Blockwork) • Cavity • Insulation (Mineral Wool Insulation) • Inner Leaf (Blockwork)

Wall Construction: Terracotta Tile Rain-screen Cladding

Construction Reference
2L55CQ

Recommended Interventions
1 Remediation

This wall construction was identified by wall inspections QZF4X9 and 6PIM2T. The build-up, cavity barrier, and floor slab information is taken directly from inspection QZF4X9. See the Inspections section of this report for full inspection details.

Construction	Effect	Risk
Terracotta Tile Rain-screen Cladding (2L55CQ) 1 Remediation	Positive	Medium

Build-Up

7 Elements	Thickness/Depth	Material	Rating (BS EN13501)
Surface Finish	15mm	Terracotta Tile	A1 - Non-Combustible
Cavity Support Frame	20mm	Galvanised Steel Horizontal Rails with Hook-on Clips	A1 - Non-Combustible
Cavity	60mm		
Other		Breather Membrane (Textile)	D - Highly Combustible
Insulation	50mm	Phenolic Foam Insulation	C - Combustible
Consists of a weather-proof external lining			
Other		Breather Membrane (Textile)	D - Highly Combustible
Inner Leaf		Concrete Slab	A1 - Non-Combustible

Cavity Barriers

None

Floor Slab

Backing Wall Sits On The Floor Slab

Fire Performance

K.1 General

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

K.2 External Surfaces

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

K.3 Facings/Cladding Panels

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

K.4 Panel Construction

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

K.5 Cavities

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

K.6 Insulation

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

K.7 Substrate

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

K.8 Sheathing Boards

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

K.9 Insulated Core Panels

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

K.10 ETICS

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Negative

K.11 Infill / Spandrel Panels

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

K.12 Internal Finishes

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

1 Recommended Remediation

We recommend that remediations should be started within three months of receipt of this report.

It is our professional opinion that all combustible materials associated with this wall type should be removed and replaced with materials that achieve a Euroclass A2 (limited combustibility) rating or better. Instillation of cavity barriers to manufacturer's recommendation.

To remove all combustible materials from the external façade which will assist in the spread of fire over the external walls.

PAS Standard Benchmark

L1 Benchmark

The Construction benchmark is outlined in section L1 of the PAS 9980 Guidance Document -

Steel (loadbearing hot rolled structural)

Loadbearing steel is non-combustible but, in buildings of more than two storeys, usually highly dependent upon applied fire protection (applied coatings or boards) in order to achieve a fire resistance standard of 30 min or more.

L2 Benchmark

Plasterboard

The core material of plasterboard is non-combustible, but the paper linings are not. Plasterboard is fire-resisting, with the specific period of fire resistance dependent upon the grade and thickness of plasterboard used, the frame to which it is fixed and the manner of its fixing. Where product markings are not visible, it is generally difficult to identify plasterboard without expert knowledge. In the absence of specific information, it is reasonable to assume plasterboard to be of standard grade.
Notwithstanding the above, plasterboard can be regarded as providing an adequate cavity barrier within wall or floor construction provided it is at least 12 mm thick. Where partitions are formed of stud construction and plasterboard at least 12 mm thick on both faces, the partition is likely to be capable of providing 30 min fire resistance, provided it is well built.

L3 Benchmark

Rigid (thermoset) foam insulations
- Polyurethane (PUR)
- Polyisocyanurate (PIR)
- Phenolic

Thermoset foam insulations are combustible, but can offer a wide range of fire performance, depending upon the specific product in question.
Both PUR and PIR can be formulated in a wide variety of ways, so where possible the assessor needs to identify the product in question. PUR and PIR foams are based upon
similar underlying chemistry, but PIR foam generally performs better than PUR due to it having greater thermal stability (more likely to char and less likely to break down into flammable substances).
Phenolic foams are generally similar to PIR foams in terms of their fire performance, though their underlying chemistry is different.
Where a rigid foam has been engineered for improved fire performance, a foil facing is commonly employed to improve performance further by protecting the foam from direct flame attack. Where a foil faced foam is used, it is typically necessary to use foil tape to seal any joints so that the underlying foam is not left exposed. The extent to which tape failure can be accepted needs to be considered in the context of the overall wall construction.
While cavity barriers need to be fixed to substrates offering the same period of fire resistance as the cavity barrier, rigid foams might, in practice, remain in place for long enough to afford a satisfactory delay to fire spread, provided the cavity barrier is not reliant upon the foam itself for support.

L4 Benchmark

Differentiating cavity barriers, fire stopping and fire barriers -

Cavity barriers are often confused with fire stopping and fire barriers.
Cavity barriers subdivide cavities. In general, any structure within external wall construction that subdivides cavities could be a cavity barrier (subject to whether its construction is capable of providing the function of a cavity barrier). ADB ([8], [9]) recommends that cavity barriers provide 30 min fire-resisting integrity and 15 min insulation unless they are in a stud wall or partition, or around an opening, and constructed from one of the following “deemed to satisfy” materials:
• steel 0.5 mm thick;
• timber 38 mm thick;
• mineral wool provided it is in slab form or sleeved in polythene; and
• calcium silicate, cement-based or gypsum-based (plaster) board at least 12 mm thick.
Cavity barriers need to be fixed in such a way which offers at least as much fire resistance as the cavity barrier itself, so as to avoid failure of the fixing causing premature failure of the cavity barrier. Construction formed of concrete, masonry or any of the “deemed to satisfy” cavity barrier constructions (i.e. stud wall construction lined with minimum 12.5 mm standard plasterboard) can be considered sufficient for this purpose.

Fire barriers are generally used to subdivide sections of combustible construction (usually combustible insulation) that does not have a cavity. Their individual performance is not defined, although they generally need to have been incorporated into a system which has been successfully tested to the relevant part of BS 8414 and classified to BR 135 [15].

Fire stopping is used to complete discontinuities in fire-resisting construction; it needs to provide the same period of fire resistance as the element it is completing. In the context of external wall construction, anything that connects compartment floors onto the inside face of the external walls is fire stopping. Once within the thickness of the external wall, only cavity barriers or fire barriers are required; however, any discontinuities in these might also require fire stopping.

L5 Benchmark

FRAMES -

The frames of windows and doors can, subject to the materials used in their construction, provide the function of cavity barriers or cavity closers around these openings. Typically, timber and steel frame windows offer the cavity barrier function whereas aluminium and uPVC do not. However, it is advisable to check uPVC frames with a magnet, as steel can be incorporated within the frame, particularly where the doors are required to provide a level of security.

L6 Benchmark

CAVITY TRAYS -

Cavity trays, which can be of either metallic (non-combustible) or polymeric (combustible) material, are installed in cavities where water in the cavity needs to be sent back to the outside of the building. Combustible cavity trays are unlikely to present a substantial fire risk given the limited fire load they represent.

Cavity trays are typically accompanied by weep holes to drain the water they collect, and generally need to be installed above cavity barriers unless the wall construction permits omission of cavity barriers.

L7 Benchmark

MASONRY (OUTER SINGLE SKIN ONLY)

When assessing a building which appears to have masonry or concrete external wall construction, the following issues need to be taken into account.
a) Is the masonry/concrete loadbearing or simply providing a façade?
b) Is the masonry/concrete traditional (i.e. full bricks laid in courses using sand/cement mortar or concrete exceeding 75 mm thick); or
1) brick slip (tiles) fixed to a substrate; or
2) factory produced (typically panellized) brickwork?
If either item 1) or item 2) above, then treat as other form of cladding depending upon underlying construction (most likely rainscreen).
c) What is the underlying construction? For example:
1) second leaf of masonry/concrete forming a cavity;
2) timber frame;
3) steel structure and frame;
4) concrete structure and SFS;
5) concrete structure and concrete panels; or
6) insulated build-up (this is typically used where historic façades are retained over more modern construction, and can come in a variety of forms).

L8 Benchmark

Rainscreen systems come in various forms, generally defined by the cold cavity arrangement they incorporate (see Table L.4):
• ventilated and drained; or
• pressure equalized.

Rainscreen systems are invariably supported on some form of framing or bracketing system. In the majority of cases, framing and bracketry transmit the load of the rainscreen to the back wall, and in turn to the building structure at each floor level.

However, consideration needs to be given to the possibility that the rainscreen load is transmitted down to the base of the system and only provides lateral restraint at floor levels. In this instance, the extent to which the frame might be exposed to fire needs to be taken into account, particularly if a material is used which offers no fire
resistance, such as aluminium.

Framing and bracketry are likely to interact with cavity barriers; where these cross over the cavity barriers then the detailing of the cavity barrier needs to be appropriate (including additional fire stopping as necessary) to achieve fire separation of cavities.

Table L.3 gives information on the various insulation materials that might be incorporated into a rainscreen system. It is unlikely that thermoplastic insulation will be acceptable in a rainscreen system, particularly if it is exposed in a cavity.

L9 Benchmark

CASSETTE PANELS -

Cassettes are generally used for both their aesthetic performance (reducing angles at which it is possible to see into cavity) and weather performance (minimizing water ingress to cavity), particularly where the material being used is relatively thin (e.g. metal sheets and composites).

Where a composite is used to form cassettes, the surface of the composite is likely to be broken on the insides of folds, so as to facilitate the formation of a clean fold. This exposes the underlying components of the composite so that it can be directly attacked by fire. If the underlying materials are readily combustible or have a low melting point, it can also lead to delamination of any portions of the cassette which are separated from fixing points by these folds, exposing more of the underlying material.

Some cassettes can also be formed by fixing elements together, rather than simply folding a sheet into the desired shape. Where this occurs the manner of fixing needs to be assessed to determine whether it is likely to fail prematurely in the event of fire.

The returns on cassettes need to be checked to determine whether there is sufficient cavity barrier detailing (or fire stopping) to mitigate the risk of fire circumventing the cavity barrier. The channel between cassettes can be open, but any spaces in the cavity need to be addressed, whether by fully filling or with an appropriate intumescent
solution.

Where cassettes have a particularly complex shape, particularly where that shape does not run parallel to the line to which cavity barriers are fixed, external wall assessors need to check that the cavity barrier fits or is able to close properly onto the inside face of the cassette along its entire length.

Where test evidence is available for a cassette, assessors need to check that it is relevant to the cassette, and not just to the material in flat panel form.

L10 Benchmark

CURTAIN WALLING SYSTEMS -

There are two principal forms of curtain wall system.
• Stand-off systems are built beyond the edges of floor slabs and run continuously across the height and width of a building. Unless a strategy has been devised to negate this need, fire stopping needs to be provided between slab edges and the inside face of the curtain wall system.
• Infill systems (now more commonly referred to as window assemblies) are built inboard of slab and/or wall edges, although they might pass across particular floor and/or wall lines to achieve a particular architectural objective. Where the system is broken up by lines of fire compartmentation, this limits the extent/speed at which fire can spread across the system.

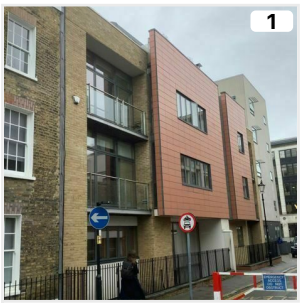
The structures of these systems can differ substantially; whereas infill systems are invariably supported at regular intervals by the building's primary structure, low-rise stand-off systems can transmit their load down to ground level, with only lateral support back to the primary structure.

Regardless of whether a curtain wall system is built as a stick system (assembled on site) or a unitized system (prefabricated panels), it is the materials used to form the framework that influence the fire performance.
• Steel framed systems can provide good edge protection to the panels in the curtain wall (provided the geometry actually covers and protects edges) as well as good resistance to collapse in the event of fire.
• uPVC framed systems are combustible; they might offer some edge protection and resistance to collapse if steelwork is embedded within them, but this would need to be confirmed.
• Aluminium framed systems are non-combustible but melt when exposed to fire, offering little edge protection and potentially risking collapse (which can be extensive if the aluminium transmits the load of the curtain wall down to ground level).
The other components of curtain wall systems are covered in Table L.5.

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 Property.

Photos



Wall Construction: Zinc Rain-screen Cladding

Construction Reference
YH98XG

Recommended Interventions
1 Remediation

This wall construction was identified by wall inspections HJF8EU, WRRTZI, and UC39YN. The build-up, cavity barrier, and floor slab information is taken directly from inspection HJF8EU. See the Inspections section of this report for full inspection details.

Construction	Effect	Risk
Zinc Rain-screen Cladding (YH98XG) 1 Remediation	Neutral	Medium

Build-Up

8 Elements	Thickness/Depth	Material	Rating (BS EN13501)
Surface Finish	6mm	Standing Seam Zinc Sheet	A1 - Non-Combustible
Cavity Support Frame	28mm	Plywood Backing Board	D - Highly Combustible
Backing board to which the zinc sheet is supported and bonded to.			
Cavity Support Frame	35mm	Timber Batten	D - Highly Combustible
Horizontal timber battens supporting the zinc and backing board.			
Cavity	35mm		
Inner Leaf	100mm	Blockwork	A1 - Non-Combustible
The masonry wall to this location formed the outer layer of two internal masonry skins.			
Cavity	100mm		
Insulation	100mm	Mineral Wool Insulation	A1 - Non-Combustible
Loose fill mineral wool partially filling the cavity.			

8 Elements	Thickness/Depth	Material	Rating (BS EN13501)
Inner Leaf	100mm	Blockwork	A1 - Non-Combustible

Masonry wall inner leaf.

Cavity Barriers

Installed

Fire Performance

K.1 General

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

K.2 External Surfaces

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

K.3 Facings/Cladding Panels

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

K.4 Panel Construction

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

K.5 Cavities

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

K.6 Insulation

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

K.7 Substrate

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

K.8 Sheathing Boards

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Negative

K.9 Insulated Core Panels

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

K.10 ETICS

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

K.11 Infill / Spandrel Panels

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

K.12 Internal Finishes

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

1 Recommended Remediation

We recommend that remediations should be started within three months of receipt of this report.

It is our professional opinion that all combustible materials associated with this wall type should be removed and replaced with materials that achieve a Euroclass A2 (limited combustibility) rating or better.

To ensure that all occupants, guests, and workers can evacuate the building safely to a place of ultimate safety.

PAS Standard Benchmark

L1 Benchmark

The Construction benchmark is outlined in section L1 of the PAS 9980 Guidance Document -

Steel (loadbearing hot rolled structural)

Loadbearing steel is non-combustible but, in buildings of more than two storeys, usually highly dependent upon applied fire protection (applied coatings or boards) in order to achieve a fire resistance standard of 30 min or more.

L2 Benchmark

Calcium silicate board

Calcium silicate board is a fire protection board which is non-combustible and, if appropriately installed, can provide fire resistance dependent upon the board used, the frame to which it is fixed and the manner of its fixing. Calcium silicate board can be regarded as providing an adequate cavity barrier within wall or floor construction provided it is at least 12 mm thick.

L3 Benchmark

Thermoplastic insulation
- EPS foam
- XPS foam
- “Multifoil insulation” (e.g. layers of reflective foil and thermoplastic fibre wadding or bubble-wrap type material)
- Importance of cavities being formed on heating

Thermoplastic insulation typically offers poor fire performance and so is reliant upon encapsulation to achieve safe external wall construction.
Thermoplastic insulation will, by definition, melt on heating, so any space which is occupied by a thermoplastic insulation needs to be assumed as becoming a cavity lined with combustible residue once involved in fire.
Encapsulation of thermoplastic insulation therefore needs to retain its integrity and likely needs to retain its shape when exposed to fire; it cannot be reliant upon the thermoplastic insulation to do this.
It is generally accepted that thermoplastic insulation will be installed below damp-proof course (DPC) level in buildings, given the need to mitigate against damp.
This is unlikely to have a significant impact on fire risk.

L4 Benchmark

Cavity Barriers -

Cavity barriers are generally needed where cavities pass across compartment lines (so as to avoid the cavity providing a route for fire to circumvent the compartment line), to the extent needed to limit extensive cavities, and around openings including doors, windows and penetrations through cavity construction. Cavities do not, in and of
themselves, need their entire envelopes to be fire-resisting (e.g. the inner face of an external wall cavity can be formed of OSB, provided there are cavity barriers where the cavity passes across a compartment line and to the extent set out previously).

Services passing through cavity external wall construction need either to be surrounded by cavity barriers or to be provided with fire stopping where they pass through the inner leaf of the external wall construction, as would be the case for services passing through 30 min fire-resisting construction.

There are various types of cavity barrier that are commonly encountered in external wall construction.

Full fill cavity barriers can be made of any of the “deemed to satisfy” materials. Mechanical fixing of such cavity barriers is the most reliable approach, but they can be compression fitted if formed of a compressible material such as stone wool.

Open state cavity barriers are commonly used to solve the competing needs of fire separation and ventilation/ drainage. There are various forms of open state cavity barrier, ranging from stone wool batt with intumescent edge strips through to multifoil cavity barriers. These cavity barriers are generally only proven to perform in particular arrangements between solid substrates forming the faces of the cavity. Where the cavity barrier only needs to be fixed to one of the two faces and expands onto the other, only the face onto which it is fixed needs to be representative; the other need not be, particularly if it is the inside face of the rainscreen and therefore likely to fall away prior to failure of the cavity barrier. Where the cavity barrier requires fixing into both faces of the cavity (e.g. certain multifoil cavity barriers are designed to be set into mortar in cavities formed of two leaves of brickwork) then both faces and the method of fixing need to be representative of the certification of the cavity barrier.

Open state cavity barriers take time to close, so caution is necessary if they are combined with cavity linings that could spread particularly rapidly, such as EPS.

Proprietary cavity barriers might only be suitable for installation in a particular orientation:
• vertical cavity barriers might not be suitable for use as horizontal cavity barriers;
• horizontal cavity barriers (particularly those which are open state) are unlikely to be suitable for use as vertical cavity barriers, and also need to be installed both the right way up and the right way round.

L5 Benchmark

GLASS -

There is a wide variety of glazing systems that can be incorporated into external wall construction. Glass can be laminated with layers of polymeric material (e.g. polyvinyl butyl) to improve various aspects of performance. Whilst these polymeric interlayers are combustible, experience has indicated that these are unlikely to contribute significantly to external fire spread.
If windows, or anything appearing to be made of glass, are found to be an alternative material (usually a solid plastic), then further information needs to be sought concerning the material's fire performance, as it might behave in a manner more akin to an infill panel or rainscreen panel.
Fire-resisting glazing also comes in a variety of forms offering varying degrees of fireresistance. The two most common types are:
• integrity-only glass, which remains in situ when exposed to fire, acting as a barrier to flame spread, but transmits thermal radiation through it; and
• insulating glass, which acts as a barrier both to heat and to thermal radiation, usually by turning opaque on heating.
If fire-resisting glazing is required to achieve satisfactory levels of safety as part of an assessment, then specialist advice needs to be sought (e.g. from the Glass and Glazing Federation).

L6 Benchmark

ACOUSTIC BREAKS / INSERTS -

Similar to thermal breaks, acoustic breaks are provided to limit sound transmission through external wall construction. These might be combustible but are generally provided at discrete locations, so do not provide an opportunity for significant fire spread.

L7 Benchmark

MASONRY (OUTER SINGLE SKIN ONLY)

When assessing a building which appears to have masonry or concrete external wall construction, the following issues need to be taken into account.
a) Is the masonry/concrete loadbearing or simply providing a façade?
b) Is the masonry/concrete traditional (i.e. full bricks laid in courses using sand/cement mortar or concrete exceeding 75 mm thick); or
1) brick slip (tiles) fixed to a substrate; or
2) factory produced (typically panellized) brickwork?
If either item 1) or item 2) above, then treat as other form of cladding depending upon underlying construction (most likely rainscreen).
c) What is the underlying construction? For example:
1) second leaf of masonry/concrete forming a cavity;
2) timber frame;
3) steel structure and frame;
4) concrete structure and SFS;
5) concrete structure and concrete panels; or
6) insulated build-up (this is typically used where historic façades are retained over more modern construction, and can come in a variety of forms).

L8 Benchmark

Rainscreen systems come in various forms, generally defined by the cold cavity arrangement they incorporate (see Table L.4):
• ventilated and drained; or
• pressure equalized.

Rainscreen systems are invariably supported on some form of framing or bracketing system. In the majority of cases, framing and bracketry transmit the load of the rainscreen to the back wall, and in turn to the building structure at each floor level.

However, consideration needs to be given to the possibility that the rainscreen load is transmitted down to the base of the system and only provides lateral restraint at floor levels. In this instance, the extent to which the frame might be exposed to fire needs to be taken into account, particularly if a material is used which offers no fire
resistance, such as aluminium.

Framing and bracketry are likely to interact with cavity barriers; where these cross over the cavity barriers then the detailing of the cavity barrier needs to be appropriate (including additional fire stopping as necessary) to achieve fire separation of cavities.

Table L.3 gives information on the various insulation materials that might be incorporated into a rainscreen system. It is unlikely that thermoplastic insulation will be acceptable in a rainscreen system, particularly if it is exposed in a cavity.

L9 Benchmark

ENGINEERED / RECONSTITUTED STONE -

Engineered/reconstituted stone cannot be assumed to be non-combustible (as is the case with natural stone) because it contains combustible polymeric resin binder. Unless combustibility can be confirmed by small-scale testing, the likely fire performance of these materials needs to be considered by reference to appropriate large-scale fire tests.

L10 Benchmark

CURTAIN WALLING SYSTEMS -

There are two principal forms of curtain wall system.
• Stand-off systems are built beyond the edges of floor slabs and run continuously across the height and width of a building. Unless a strategy has been devised to negate this need, fire stopping needs to be provided between slab edges and the inside face of the curtain wall system.
• Infill systems (now more commonly referred to as window assemblies) are built inboard of slab and/or wall edges, although they might pass across particular floor and/or wall lines to achieve a particular architectural objective. Where the system is broken up by lines of fire compartmentation, this limits the extent/speed at which fire can spread across the system.

The structures of these systems can differ substantially; whereas infill systems are invariably supported at regular intervals by the building's primary structure, low-rise stand-off systems can transmit their load down to ground level, with only lateral support back to the primary structure.

Regardless of whether a curtain wall system is built as a stick system (assembled on site) or a unitized system (prefabricated panels), it is the materials used to form the framework that influence the fire performance.
• Steel framed systems can provide good edge protection to the panels in the curtain wall (provided the geometry actually covers and protects edges) as well as good resistance to collapse in the event of fire.
• uPVC framed systems are combustible; they might offer some edge protection and resistance to collapse if steelwork is embedded within them, but this would need to be confirmed.
• Aluminium framed systems are non-combustible but melt when exposed to fire, offering little edge protection and potentially risking collapse (which can be extensive if the aluminium transmits the load of the curtain wall down to ground level).
The other components of curtain wall systems are covered in Table L.5.

Photos

Façade Configuration: BBGZNI

Items in Façade

3 Items	Effect	Risk
Wall Construction Terracotta Tile Rain-screen Cladding (2L55CQ)	Positive	Medium
Attachment Cantilever Balcony (S248KT)	Positive	Medium
External Door French Doors (MZHMBX)	Neutral	Low

Façade Configuration Risk Factors

N.1 Building Height/Cladding Height

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

N.2 Height of Base of Cladding (Above Ground)

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

N.3 Extent of Cladding

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

N.4 Cavities & Openings

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Negative

N.5 Infill / Spandrel Panels

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

N.6 Setbacks - Combustible Cladding Setback from Wall Edge

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

N.7 Overhangs & Projections

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Negative

N.8 Proximity to Windows and Other Openings to the Accommodation

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

N.9 Presence of vents or other openings for services in the Façade

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

N10. Proximity of Combustible Elements of a Façade to Escape Route Windows & Other Openings

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

N.11 Attachments

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

N.12 Proximity of Combustible Elements of a Façade to a Neighbouring Building

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Negative

Risk Factor Analysis

1) Impact of Risk from Fire Performance: This is a conclusion of the fire performance risk factors.

2) Impact of Risk from Façade Configuration: This is a conclusion of the impact the Façade Configuration has on the Fire Performance risk factor analysis.

3) Impact of Risk from Fire Strategy / Fire Hazards: This is a conclusion of the impact the Fire Strategy has on the anlyasis of the Fire Performance and Façade Configuration.

Conclusion: This is a conclusion of the overall Risk Factors. The impacts of the Fire Performance, Façade Configuration and Fire Strategy have been taken into account.

Low

Fire Engineers Comments

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

Façade Configuration: 94YZBW

Items in Façade

2 Items	Effect	Risk
Wall Construction Zinc Rain-screen Cladding (YH98XG)	Neutral	Medium
External Window Top, Mid, Side Hung Casements (LQ8ZS7)	Neutral	Low

Façade Configuration Risk Factors

N.1 Building Height/Cladding Height

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

N.2 Height of Base of Cladding (Above Ground)

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

N.3 Extent of Cladding

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

N.4 Cavities & Openings

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

N.5 Infill / Spandrel Panels

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Negative

N.6 Setbacks - Combustible Cladding Setback from Wall Edge

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

N.7 Overhangs & Projections

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

N.8 Proximity to Windows and Other Openings to the Accommodation

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

N.9 Presence of vents or other openings for services in the Façade

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

N10. Proximity of Combustible Elements of a Façade to Escape Route Windows & Other Openings

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Positive

N.11 Attachments

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

N.12 Proximity of Combustible Elements of a Façade to a Neighbouring Building

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Negative

Risk Factor Analysis

1) Impact of Risk from Fire Performance: This is a conclusion of the fire performance risk factors.

2) Impact of Risk from Façade Configuration: This is a conclusion of the impact the Façade Configuration has on the Fire Performance risk factor analysis.

3) Impact of Risk from Fire Strategy / Fire Hazards: This is a conclusion of the impact the Fire Strategy has on the anlyasis of the Fire Performance and Façade Configuration.

Conclusion: This is a conclusion of the overall Risk Factors. The impacts of the Fire Performance, Façade Configuration and Fire Strategy have been taken into account.

Medium

Fire Engineers Comments

This is an engineers comment. Provide one or more comment for each risk factor. Each comment can be rated as positive, neutral or negative.

Neutral

APPENDIX

Asset Information

Building Height

Over 18 metres

Total Building Height (m)

19

Height To Uppermost Building Level (m)

16.5

Number Of Storeys

4

Number Of Apartments

13

Type Of Occupancy

Residential

Age Of Building Construction

2010-2022

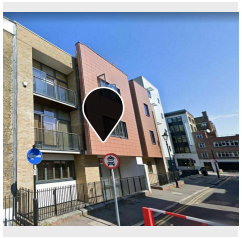
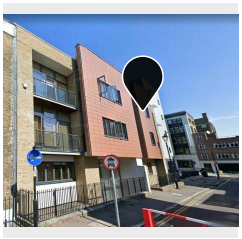
Aerial Perspective: Facade Building

Aerial perspective of building to show roof and surrounding areas.

Elevations

Photo	Name	No. of Storeys	Features
	North	3 Storeys	• Commercial Premises • Escape Route Exit
	West	4 Storeys	• Car Park Entrance • Escape Route Exit

Inspections

Elevation Location	Inspection	Elements
	**Inspection: QZF4X9** North Elevation First Floor Slab and Window.	• Surface Finish (Terracotta Tile) • Cavity Support Frame (Galvanised Steel Horizontal Rails with Hook-on Clips) • Cavity • Other (Breather Membrane (Textile)) • Insulation (Phenolic Foam Insulation) • Other (Breather Membrane (Textile)) • Inner Leaf (Concrete Slab)
	**Inspection: 6PIM2T** North Elevation Second Floor Window.	• Surface Finish (Terracotta Tiles) • Cavity Support Frame (Galvanised Steel Horizontal Rails with Hook-on Clips) • Cavity • Other (Breather Membrane (Textile)) • Insulation (Phenolic Foam Insulation) • Other (Tyvek Dupont Breather Membrane) • Inner Leaf (Concrete Blockwork) • Other ('Dot and Dab' Adhesive) • Inner Leaf (Plasterboard)
	**Inspection: HJF8EU** West Elevation Third Floor	• Surface Finish (Standing Seam Zinc Sheet) • Cavity Support Frame (Plywood Backing Board) • Cavity Support Frame (Timber Batten) • Cavity • Inner Leaf (Blockwork) • Cavity • Insulation (Mineral Wool Insulation) • Inner Leaf (Blockwork)
	**Inspection: WRRTZI** West Elevation Second Floor	• Surface Finish (Standing Seam Zinc sheet) • Cavity Support Frame (Plywood backing board) • Cavity Support Frame (Timber frame) • Cavity • Inner Leaf (Concrete Blockwork) • Other ('Dot and Dab' Adhesive) • Inner Leaf (Plasterboard)
	**Inspection: UC39YN** West Elevation Third Floor	• Surface Finish (Brickwork) • Cavity • Insulation (Mineral Wool Insulation) • Inner Leaf (Blockwork) • Inner Leaf Support (Backing Wall) (Metal Stud Frame) • Inner Leaf (Plasterboard)

Inspection: QZF4X9

Elevation • Location
North Elevation • First Floor Slab and Window.

Name/Summary

Terracotta Tile Rainscreen cladding

Build-Up

7 Elements	Thickness/Depth	Material	Photo Ref.	Rating (BS EN13501)
Surface Finish	15mm	Terracotta Tile	5, 6	A1 - Non-Combustible
Cavity Support Frame	20mm	Galvanised Steel Horizontal Rails with Hook-on Clips	7, 8	A1 - Non-Combustible
Cavity	60mm		9	
Other		Breather Membrane (Textile)	7	D - Highly Combustible
Insulation	50mm	Phenolic Foam Insulation	7	C - Combustible
Consists of a weather-proof external lining				
Other		Breather Membrane (Textile)		D - Highly Combustible
Inner Leaf		Concrete Slab		A1 - Non-Combustible

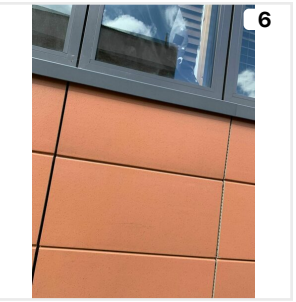
Cavity Barriers

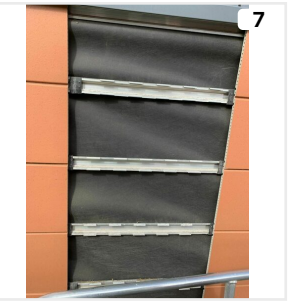
None

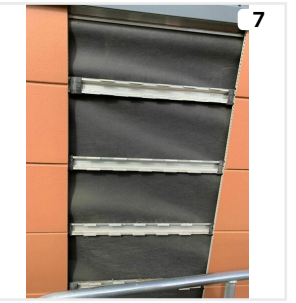
Floor Slab

Backing Wall Sits On The Floor Slab

Build-up Photos







Inspection Photos

Inspection: 6PIM2T

Elevation • Location
North Elevation • Second Floor Window.

Name/Summary

Terracotta Tile Rainscreen cladding

Build-Up

9 Elements	Thickness/Depth	Material	Photo Ref.	Rating (BS EN13501)
Surface Finish	15mm	Terracotta Tiles	14, 15, 16, 17	A1 - Non-Combustible
Cavity Support Frame	20mm	Galvanised Steel Horizontal Rails with Hook-on Clips	18, 19, 20	A1 - Non-Combustible
Cavity	60mm		21, 22	
Other		Breather Membrane (Textile)	18	D - Highly Combustible
Insulation	50mm	Phenolic Foam Insulation	23, 24	C - Combustible
Consists of a weather-proof external lining.				
Other		Tyvek Dupont Breather Membrane	25, 26	D - Highly Combustible
Inner Leaf	100mm	Concrete Blockwork	27	A1 - Non-Combustible
Other	20mm	'Dot and Dab' Adhesive		A1 - Non-Combustible
Inner Leaf (Plasterboard)	15mm		28, 29	A2 - Limited Combustibility

Finished with 2-3mm plaster skim coat and paint.

Cavity Barriers

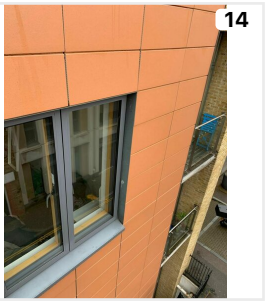
1 Cavity Barrier	Material	Photo Ref.
Window Aperture	Intumescent Cavity Strip Material Brand: Envirograf Rainscreen Cavity Barrier (RSM/I/70)	

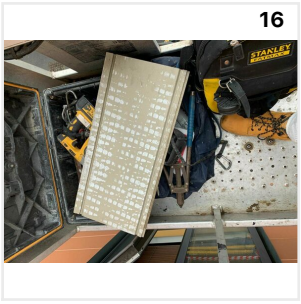
Fitted around window opening.

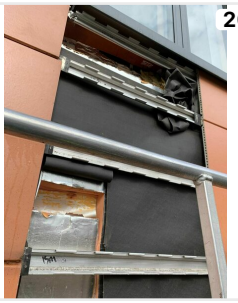
Floor Slab

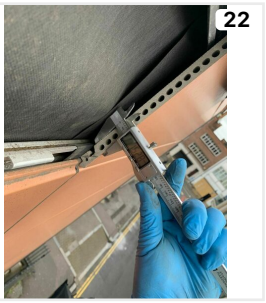
Backing Wall Sits On The Floor Slab

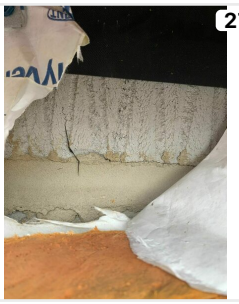
Build-up Photos



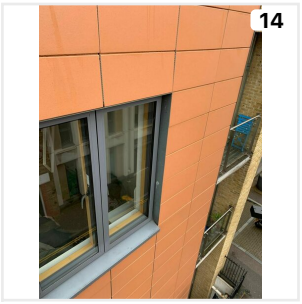








Inspection Photos



Inspection: HJF8EU

Elevation • Location
West Elevation • Third Floor

Name/Summary

Zinc Rainscreen Cladding

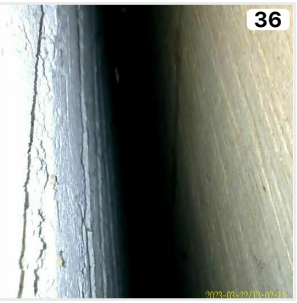
Build-Up

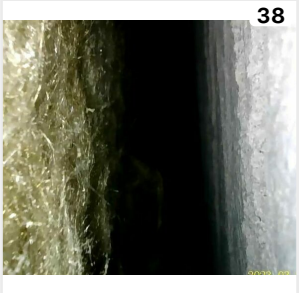
8 Elements	Thickness/Depth	Material	Photo Ref.	Rating (BS EN13501)
Surface Finish	6mm	Standing Seam Zinc Sheet	30, 31	A1 - Non-Combustible
Cavity Support Frame	28mm	Plywood Backing Board	32, 33	D - Highly Combustible
Backing board to which the zinc sheet is supported and bonded to.				
Cavity Support Frame	35mm	Timber Batten	34, 35	D - Highly Combustible
Horizontal timber battens supporting the zinc and backing board.				
Cavity	35mm		33	
Inner Leaf	100mm	Blockwork	36, 37	A1 - Non-Combustible
The masonry wall to this location formed the outer layer of two internal masonry skins.				
Cavity	100mm		38	
Insulation	100mm	Mineral Wool Insulation	38, 39	A1 - Non-Combustible
Loose fill mineral wool partially filling the cavity.				
Inner Leaf	100mm	Blockwork	40	A1 - Non-Combustible
Masonry wall inner leaf.				

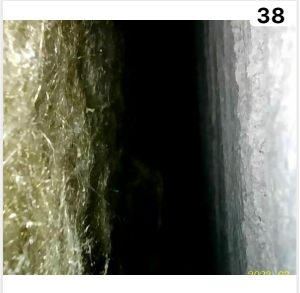
Cavity Barriers

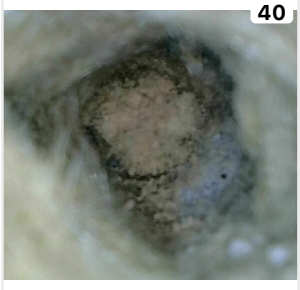
Installed

Build-up Photos









Inspection Photos

Inspection: WRRTZI

Elevation • Location
West Elevation • Second Floor

Name/Summary

Zinc Rainscreen Cladding (Type 2)

Details

There is no cavity barrier at the slab level.

Build-Up

7 Elements	Thickness/Depth	Material	Photo Ref.	Rating (BS EN13501)
Surface Finish	6mm	Standing Seam Zinc sheet	43, 30	A1 - Non-Combustible
Cavity Support Frame	20mm	Plywood backing board	44, 45	D - Highly Combustible
Backing board to which the zinc sheet is supported and bonded to.				
Cavity Support Frame	135mm	Timber frame	46, 47	D - Highly Combustible
Timber framework supporting the zinc and backing board.				
Cavity	135mm		47	
Inner Leaf	100mm	Concrete Blockwork		A1 - Non-Combustible
Other	20mm	'Dot and Dab' Adhesive	48, 49	A1 - Non-Combustible
Inner Leaf (Plasterboard)	16mm	Material Brand: Gypsum Plasterboard	50, 51	A2 - Limited Combustibility

One layer of 12.5mm plasterboard finished with plaster 2-3mm skim coat and paint.

Cavity Barriers

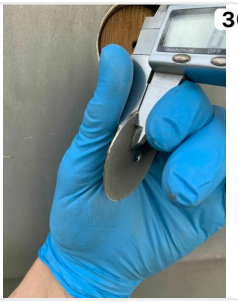
1 Cavity Barrier	Material	Photo Ref.
Window Aperture	Timber over 38mm	

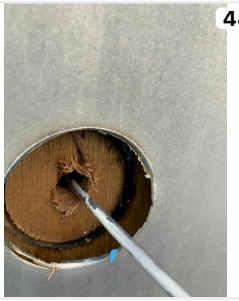
Timber frame closes cavity at the window opening.

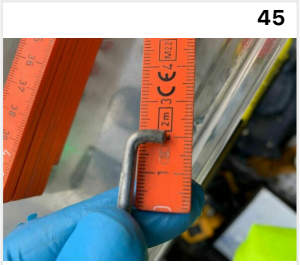
Floor Slab

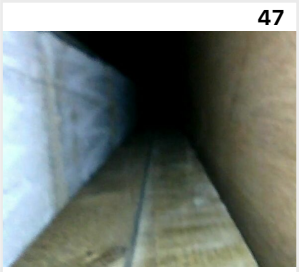
Backing Wall Sits On The Floor Slab

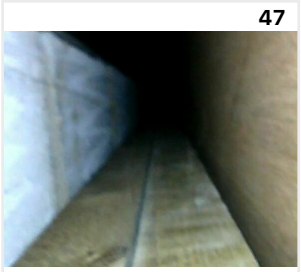
Build-up Photos



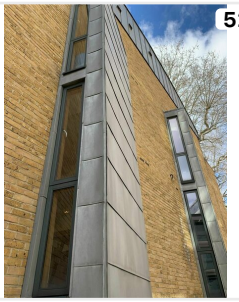


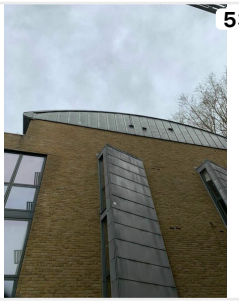


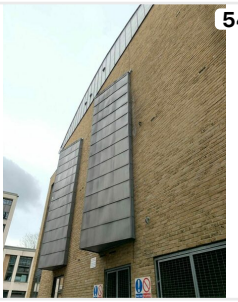




Inspection Photos







Inspection: UC39YN

Elevation • Location
West Elevation • Third Floor

Name/Summary

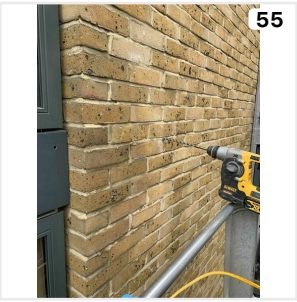
Traditional Masonry Brickwork

Build-Up

6 Elements	Thickness/Depth	Material	Photo Ref.	Rating (BS EN13501)
Surface Finish	102mm	Brickwork	55, 56, 57	A1 - Non-Combustible
Cavity	90mm		58, 59	
Insulation	70mm	Mineral Wool Insulation		A1 - Non-Combustible
Inner Leaf	100mm	Blockwork	60	A1 - Non-Combustible
Inner Leaf Support (Backing Wall)	150mm	Metal Stud Frame	61	A1 - Non-Combustible
Void within the frame work is empty				
Inner Leaf (Plasterboard)	28mm	Material Brand: Gypsum Plasterboard	62, 63	A2 - Limited Combustibility

Two layers of 12.5,, plasterboard finished with plaster 2-3mm skim coat and paint.

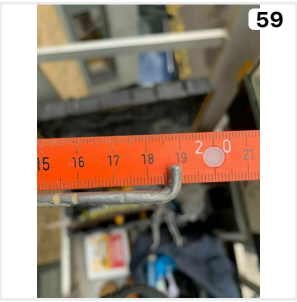
Build-up Photos


55


56


57


58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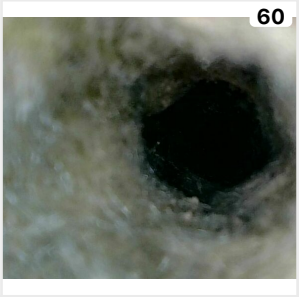

60


61


62


63

Inspection Photos


64


65

Attachments & Balconies

Photo	Attachment
 1	**Cantilever Balcony (S248KT)** Configuration: Inset Size: Private balcony spanning only a single compartment

Attachment: Cantilever Balcony

Attachment Reference
S248KT

Details

Configuration

Inset

Framework/Structure

Steel Framed

Size

Private balcony spanning only a single compartment

Balustrade/Handrail

Frameless glass with stainless steel fixings and handrails

Decking & Supports

Timber decking on a steel frame

Soffit

Timber

Details

Open, projecting and Vertically aligned

L6 Benchmark

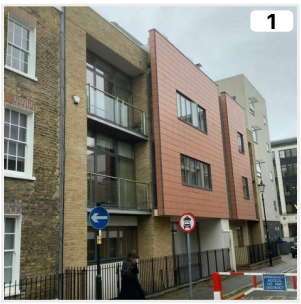
Terraces -

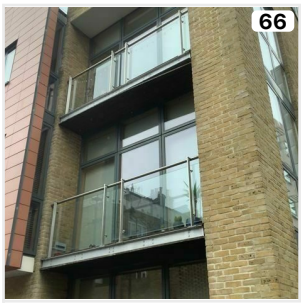
Terraces that communicate with external walls ought to be considered in a similar context to the balconies described in item a) of the “Balconies” row above.

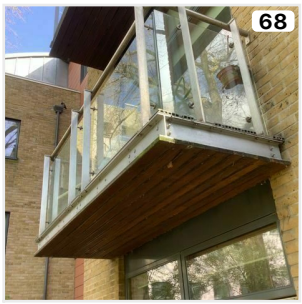
In particular relation to terraces, pergolas can provide a fuel load which can support a significant fire.
Where a terrace is on a roof or communicates with an external wall that is only single storey (e.g. terrace to a Penthouse) then it can be considered as a roof.

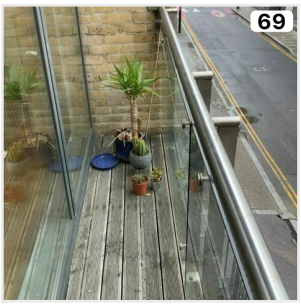
As with balconies, the materials used to line terraces, and storage by residents, both need to be taken into account.

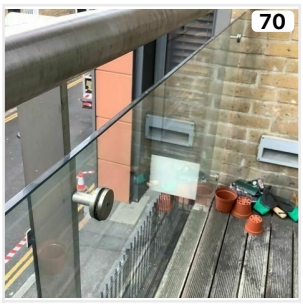
Photos

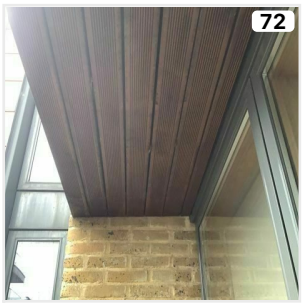












Penetrations

Photo	Penetration
	**Ventilation (1S69KN)** Inspection Type: Intrusive
	**Air Brick (6XLYNF)** Inspection Type: Visual

Penetration: Ventilation

Penetration Reference
1S69KN

Details

Inspection Type

Intrusive

Duct Pipework Material

UPVC

Means Of Fire Stopping

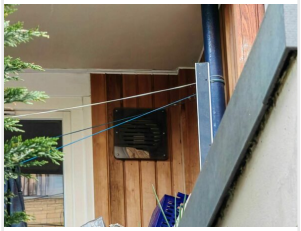
None

Additional Photos

73

75

76



77

78

79

80

Penetration: Air Brick

Penetration Reference
6XLYNF

Details

Location

Pin on North Elevation

Inspection Type

Visual

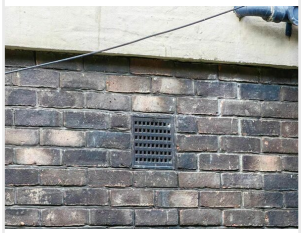
Means Of Fire Stopping

N/A

Additional Photos

74

81



82

External Windows

Photo	External Window
	Top, Mid, Side Hung Casements (LQ8ZS7)

External Window: Top, Mid, Side Hung Casements

External Window Reference
LQ8ZS7

Details

Surface Material

Aluminium

Frame Material

Timber

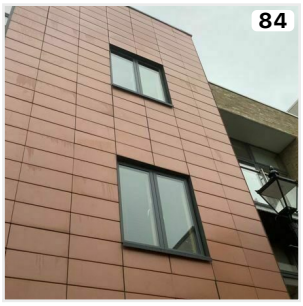
Infill / Panel Material

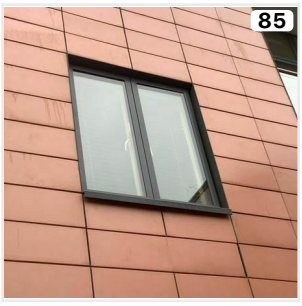
Toughened Glass

Details

BS 12150 Kite-mark

Photos





External Doors

Photo	External Door
	**French Doors (MZHMBX)**

External Door: French Doors

External Door Reference
MZHMBX

Details

Surface Material

Aluminium (powder coated) exterior profile on top of Timber

Frame Material

Timber

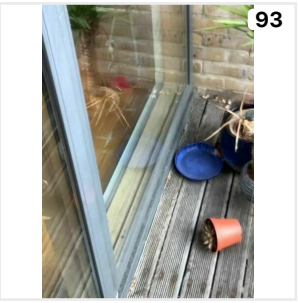
Infill / Panel Material

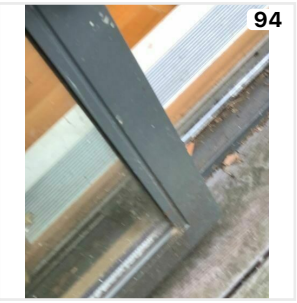
Toughened Glass

Details

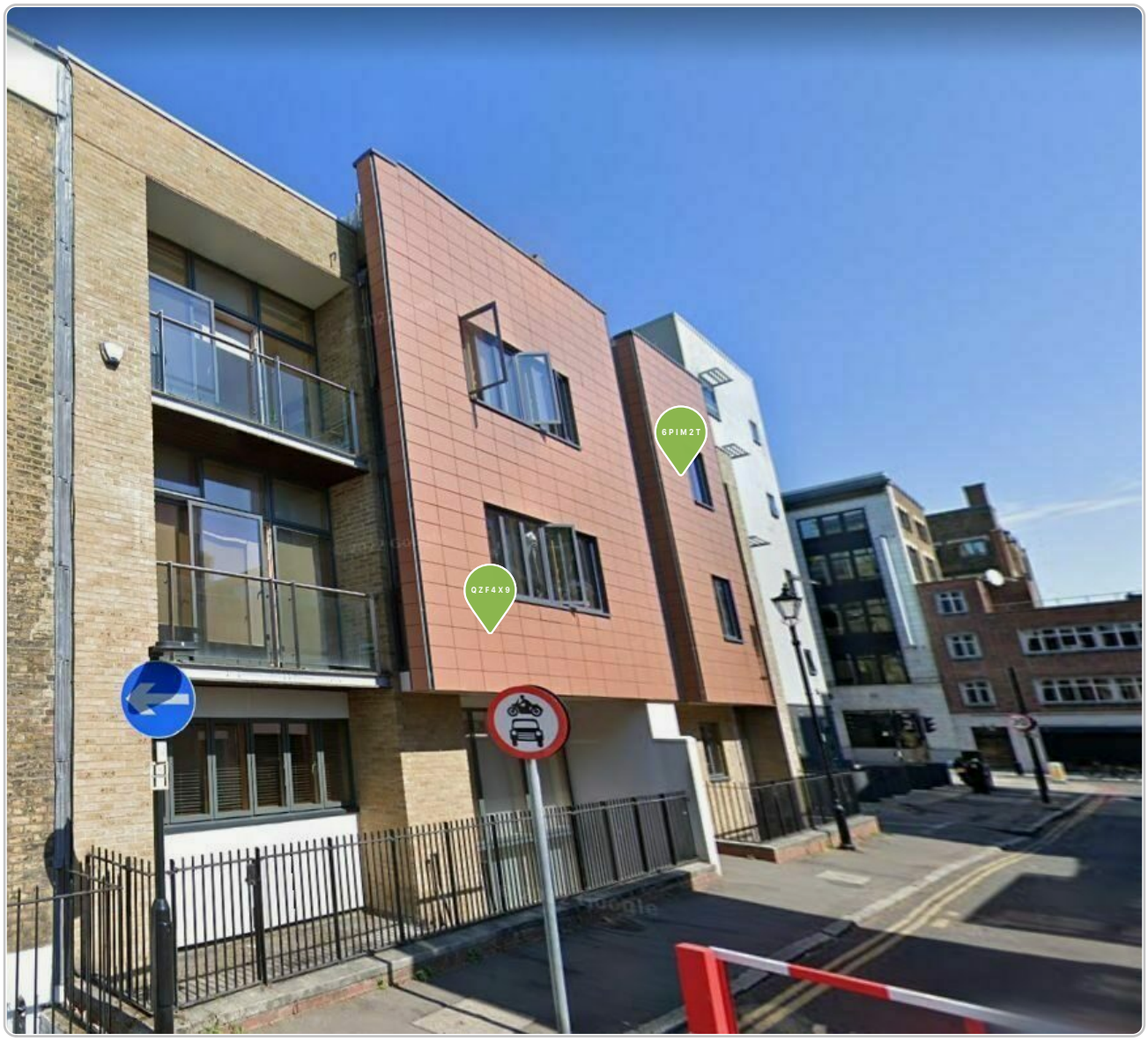
No kite-marks on the glass

Photos



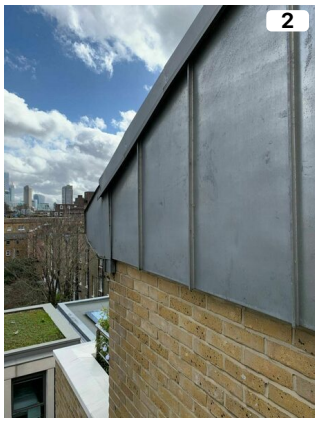


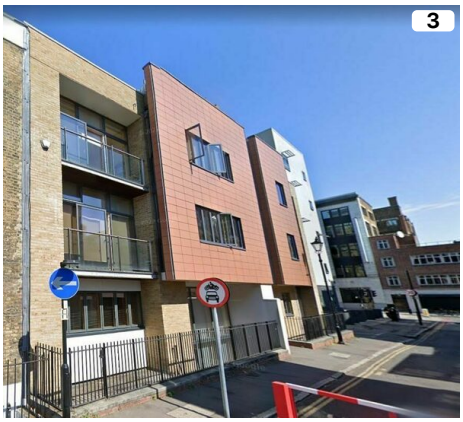
Elevation: North Elevation

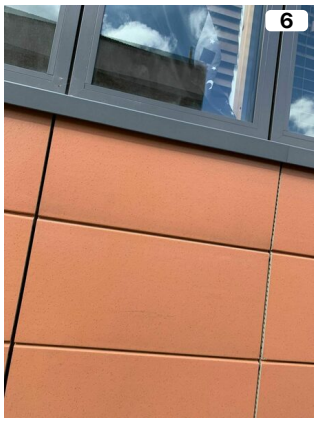


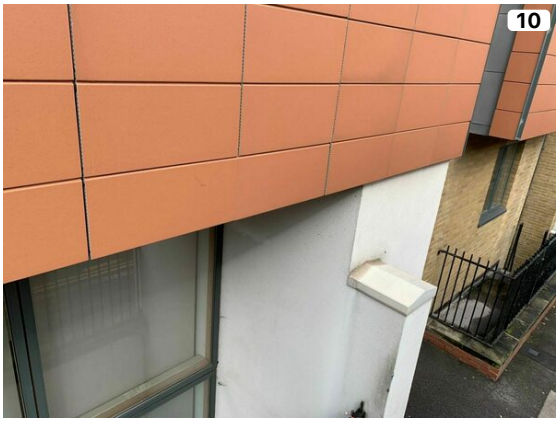
Elevation: West Elevation

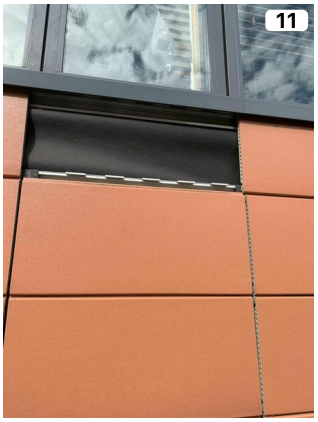
Photos











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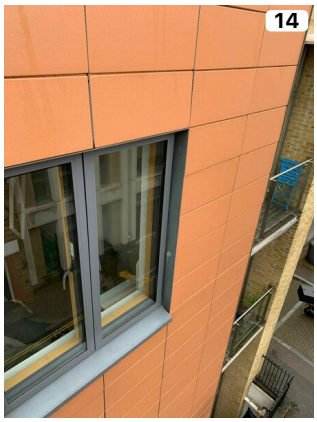
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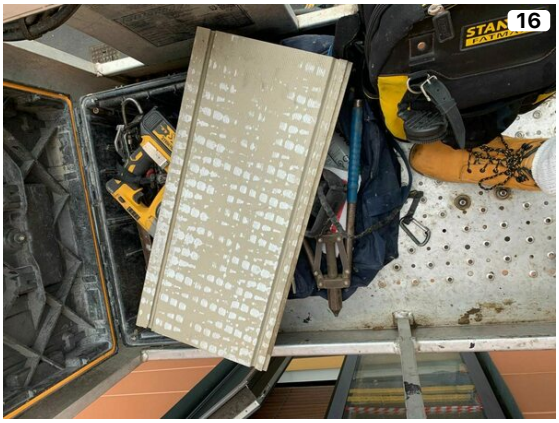
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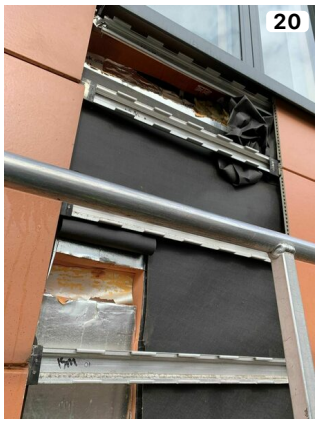
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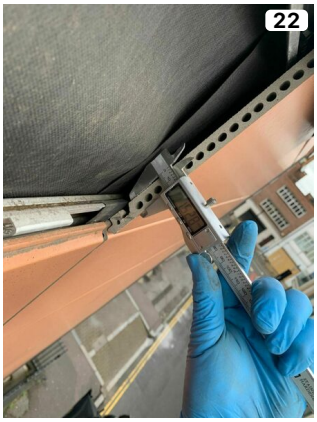
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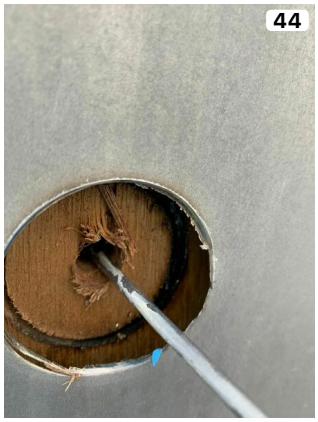
Photos Continued...



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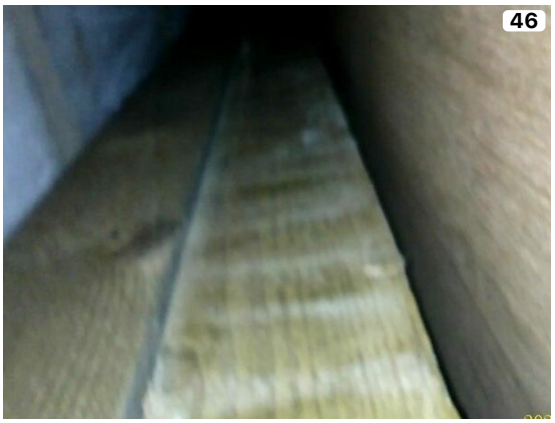

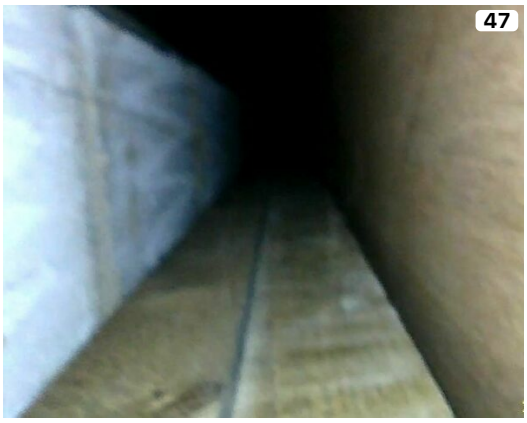

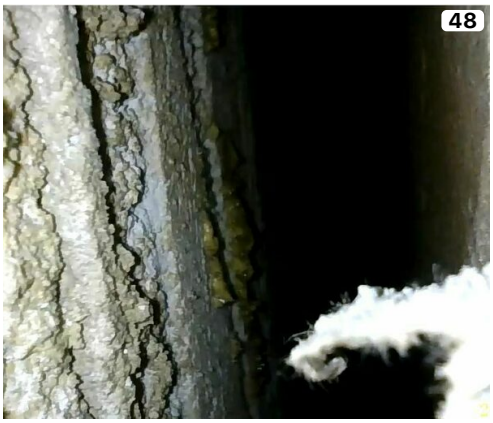

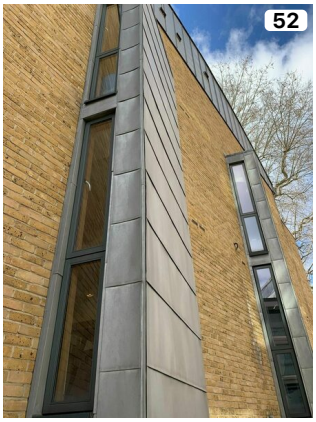

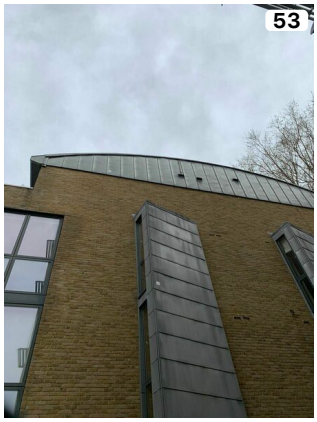

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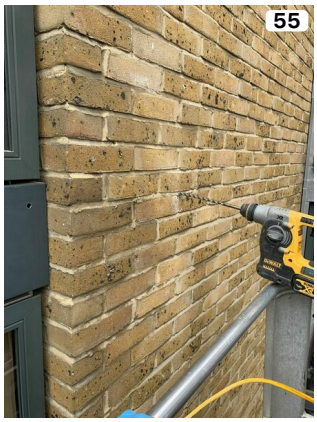

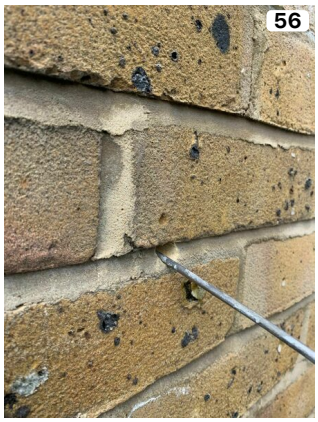

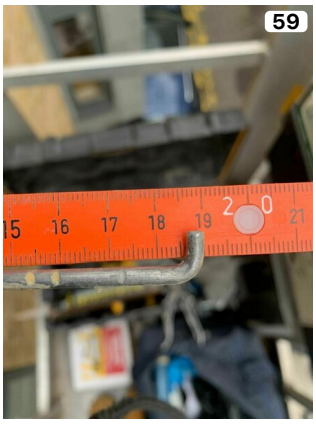

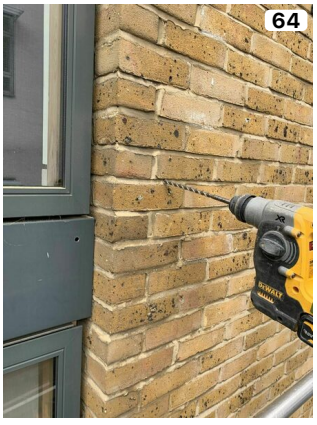

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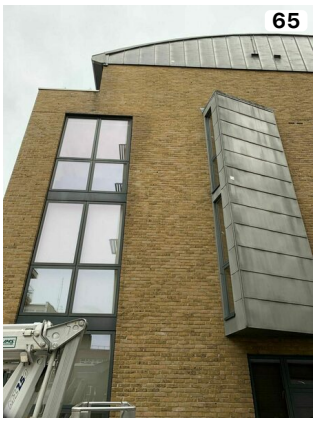

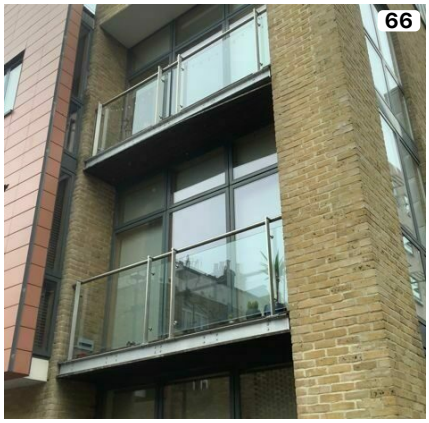

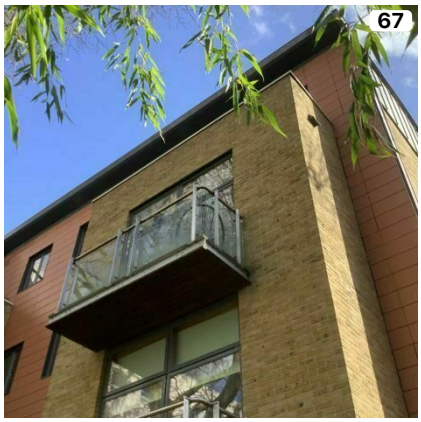

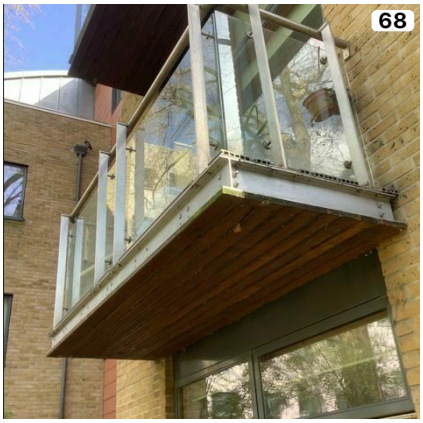

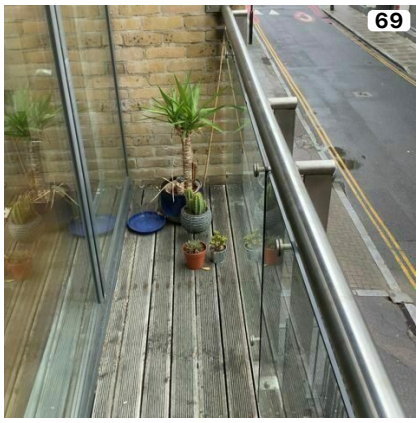

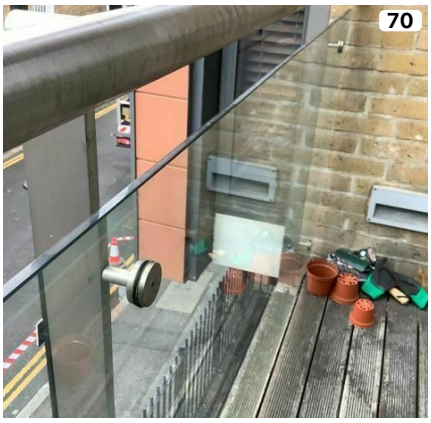

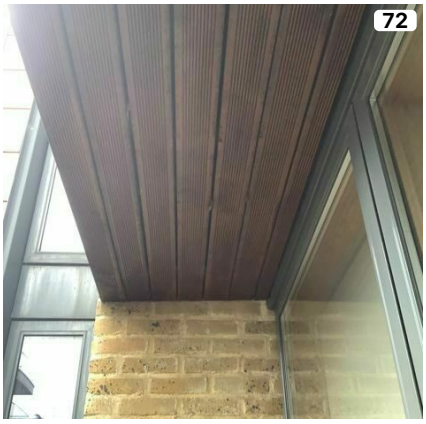

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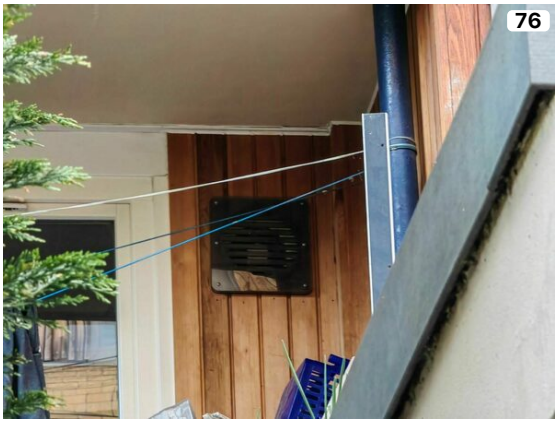

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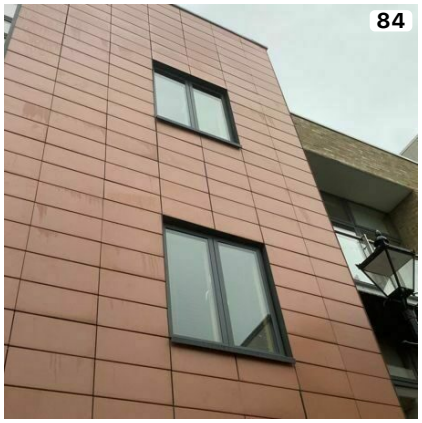

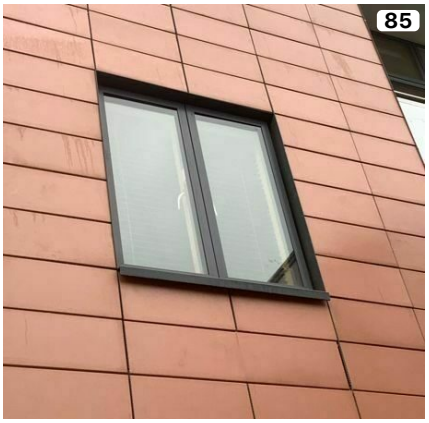

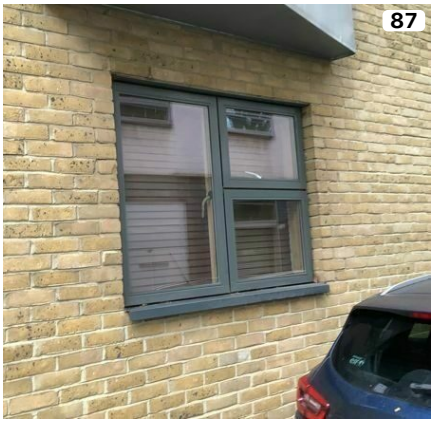

Photos Continued...