

## ANNEX to TG2022-06

Example House

External Wall Investigation Report

ref: 123/456/78 rev A



*Contractor Q Logo*

## Quality information

### Prepared by

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Insert signature of each person

Name  
Position, e.g. Fire Engineer  
Role

Name  
Position, e.g. Architect  
Role

Name  
Position e.g. Facade Engineer  
Role

### Checked by

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Name  
Position  
Role

### Verified by

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Name  
Position  
Role

### Approved by

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Name  
Position  
Role

## Revision History

Revision	Revision date	Details	Authorized	Name	Position
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### Prepared for:

DIO contact person details

### Prepared by:

Engineer 1

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# 1 Executive summary

Single page summary of the entire report, including all sections and conclusions.

## 2 Introduction

The following items should be included:

### 2.1 Building description

A description of the building and its use, including:

- building height,
- the number of apartments,
- the type of occupancy,
- the type of construction
- age of the building.
- Any other pertinent information.

### 2.2 Objective of the Investigations

The objective of the FRAEW is:

- a. to ensure the assessed buildings are fit for purpose and safe to occupy from an external fire spread viewpoint, and
- b. to document that assessment in a consistent manner, which will allow the building records to be updated with clear information in respect of the external wall build up.

### 2.3 A list of documents reviewed

Table 1. List of Documents Reviewed

Ref	Document name	Description	Originator
1.	20151102_Fire strategy Report	Stage D fire strategy report	Company A
2.	20210905_FRA	Fire risk assessment	Company B

### 2.4 A list of documents referenced

Table 2. List of Documents Referenced

Ref	Document name
1.	Building Regulations and guidance document, both current pertinent at the time of construction
2.	MHCLG Consolidated Advice Note issued January 2020 (CAN)
3.	PAS 9980 2022 Fire Risk Appraisal and Assessment of External Wall construction and Cladding of existing Blocks of Flats
4.	Fire Safety Act 2021
5.	Regulatory reform (Fire Safety) Order 2005

### 2.5 Limitations of the investigation

### 3 Desktop review the fire risk assessment / fire strategy.

Desktop review of current (in operation) fire strategy, as described in the FRA and any fire strategy information available in the accompanying information. The exercise is to ensure holistic and up to date understanding of the building and its fire strategy.

This technical note should summarise the key findings of its review by way of record.

#### 3.1 Introduction:

This section should include an overview of the documents reviewed. A Table should be provided listing the documents reviewed as shown below.

Table 3. Documents Reviewed

Ref	Document name	Description	Originator
1.	20151102_Fire strategy Report	Stage D fire strategy report	Company A
2.	20210905_FRA	Fire risk assessment	Company B

#### 3.2 Summary of the FRA:

Include a summary of all critical building information stated within the FRA and any risks identified along with the risk rating provided.

#### 3.3 Summary of the existing fire strategy:

Include summary of B1 to B5 provisions as stated in the fire strategy

#### 3.4 List of deviations, omissions, and assumptions:

Include all the deviations, omissions and assumptions that have come to light during the review of the fire strategy.

#### 3.5 Basis of Design (BOD)

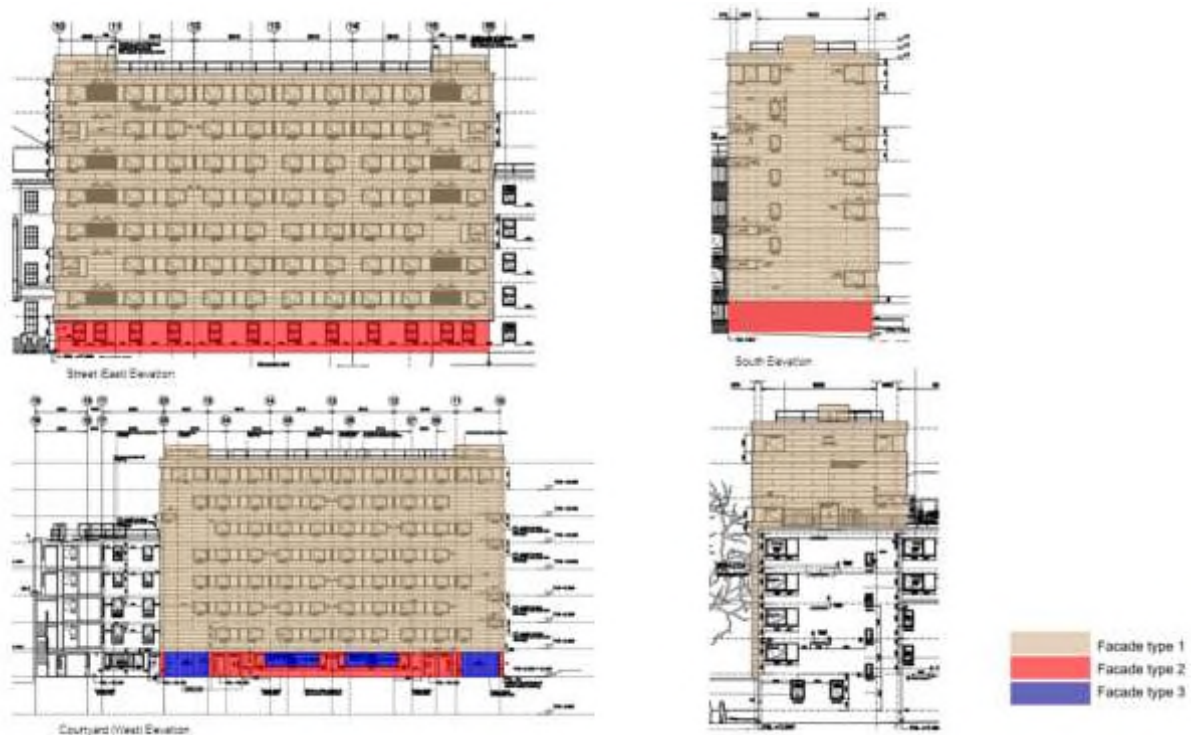
Make a statement of the regulations used to construct the building and describe where these differ from current Building Regulations.

## 4 Façade Types

State how many different External Wall types there are and introduce the section. Produce a description of each external wall type using the format as set out below.

Produce a diagram indicating the location of each faced type, for example:

Figure 1. External Wall Type Location Plan



### 4.1 External Walls - Type 1

#### External Wall Type 1 Fire Performance Requirements

Insert a resume of the External Wall requirements, for example:

Table 4. External Wall Type 1 Fire Performance Requirements

Type	Location	Fire performance	Surface Combustibility	Cavity Barriers & fire stopping
Add description, for example: <i>Tile cladding</i>	Add a description pertinent to its location, for example: <i>This external wall type is located on the XX levels, areas facing an access adjacent to a balcony in areas where there is a single direction of escape. It contains windows and crosses compartment lines</i>	Add a description of the fire performance requirements and the basis for the determination, for example: <i>The cladding is located in areas facing an access balcony with single direction of escape; therefore, the guidance from BS 9991 clause 7.3 F) requires that the face of the building (excluding window openings) should provide at least 30 min fire resistance for integrity and insulation, E &amp; I.</i>	Add a description of the surface combustibility performance requirements and the basis for the determination, for example: <i>The tile cladding is located in areas where there is only one direction of escape. Consequently, guidance recommends that the external wall surface materials should be of a Class 0 rating. The classification given in BS 9991 guidance has been superseded and the European Classification, A2-s1, d0 is used in lieu of the British Standard, Class 0.</i>	Add a description of the performance requirements and the location pertinent to the building, for example: <i>30 min R and 15 min I Cavity Barriers are required around windows and at the extents of the cavity. 60min R &amp; I Fire stopping is required on compartment wall lines.</i>



## 4.2 Inspections and Wall Composition

State which inspections relate to this External Wall type, state the number of inspections undertaken, for example:

*Contractor Q made 4 separate intrusive investigations, (investigations 1 through 4) and has produced the drawings in figure x and Y to illustrate the wall build up as observed at those two locations. Both inspections 3 & 4 were the same but in different locations.*

*XYZ Contractors Limited (XYZ) provided access to locations 1-4 via a cherry picker for the careful removal of the top 5 sections of Tile cladding. After removal of the sections of cladding, the opening and the cladding were to be made available to Contractor Q for visual inspection.*

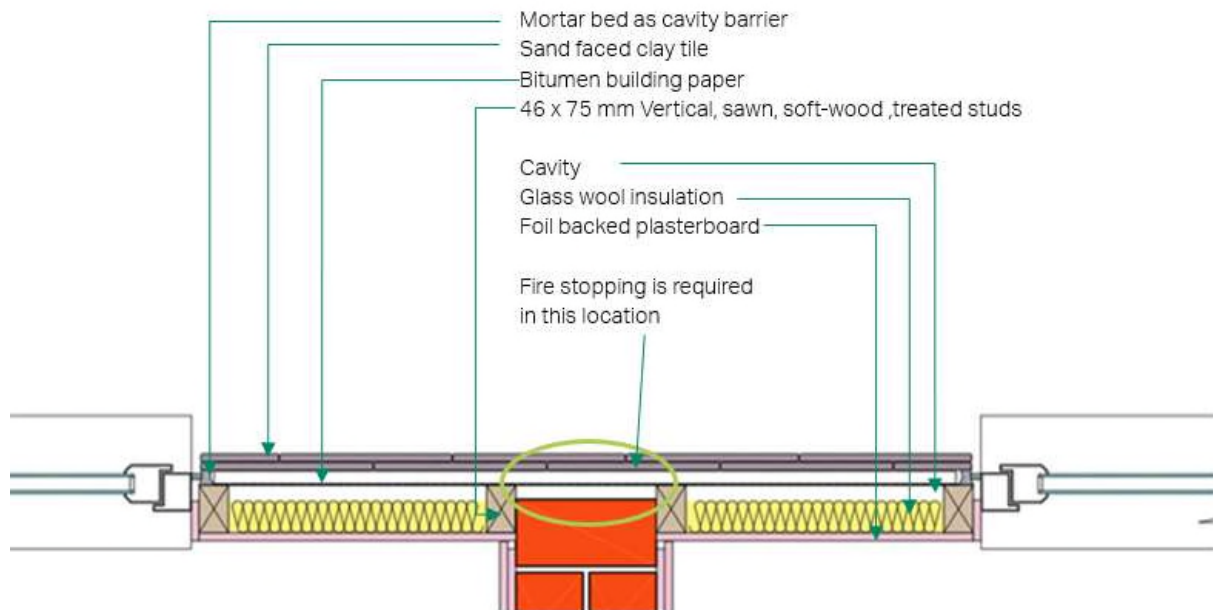


Figure 2. Plan View

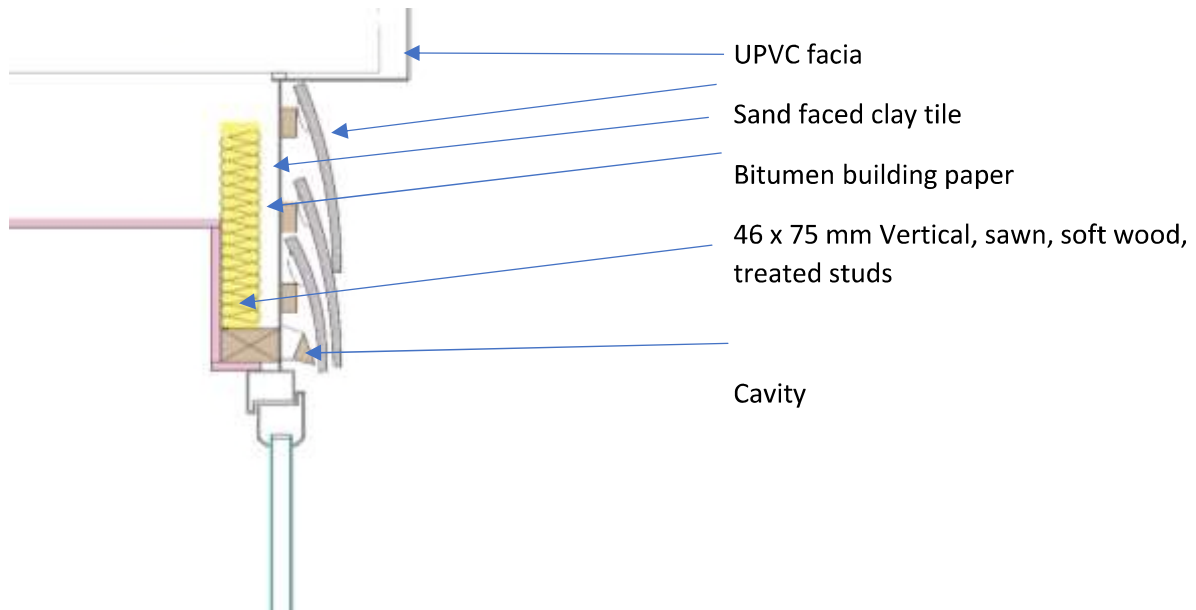


Figure 3. Section View

### 4.3 Fire Performance

State whether the fire performance requirements of the External wall type have been achieved, for example:

*The tile cladding is located in areas facing an access balcony with single direction of escape; the guidance from BS 9991 clause 7.3 F) requires that in these situations the face of the building (excluding window openings) should provide at least 30 min fire resistance for integrity and insulation, E & I.*

*Fire resistance performance is based on complete 'elements' such as a partition, wall, ceiling membrane or floor, rather than the individual plasterboards that only form part of these constructions. Referencing the XXXX technical manual, Fig xx fire resistance of 30 mins can be achieved with studs of a similar size if Gypsum board is placed on both sides of the stud.*

*Contractor Q determined during the intrusive investigations that the composition of the wall has plasterboard to the inside face only.*

*Due to the fact that the timber stud is not encapsulated in the plaster board on both sides, Contractor Q cannot confirm that the composition of the external wall as inspected would achieve the required fire performance.*

### 4.4 Surface Combustibility

State whether the surface requirements of the External wall type have been achieved, for example:

*The investigations revealed that the external surface of the wall is formed with a clay tile, this is non-combustible material and considered to be in line with the performance requirements.*

### 4.5 Cavity Barriers & Fire Stopping

State whether the cavity barrier and stopping requirements for the external wall type have been achieved, for example:

*The investigations revealed the following in relation to the fire safety requirements of the external wall:*

- 1. A cement-mortar bed had been applied to close the wall cavity at the window jambs. This is in line with the guidance for cavity barriers in the Approved Documents.*

2. *No cavity barriers had been installed at the top of the cavity; this is contrary to guidance for cavity barriers in the Approved documents.*
3. *No cavity barriers had been installed at the head of the windows and at top of the cavity; this is contrary to guidance for cavity barriers in the Approved documents.*
4. *Fire stopping between the compartment wall line and the inside face of the tile cladding had been omitted at the locations inspected.*

## 4.6 Summary of External Wall Defects

Insert a summary table of all wall types, for example:

**Table 5. Summary of External Wall Defects**

<i>Type</i>	<i>Fire Performance</i>	<i>Surface Combustibility</i>	<i>Cavity Barriers and Fire Stops</i>
<i>1. Timber-cladding</i>	<i>Compliant</i>	<i>Combustible and Compliant</i>	<i>Non-Compliant Cavity barriers missing at extent, Fire stops missing or incomplete</i>
<i>2. Tile cladding</i>	<i>Non-Compliant Not 30 min RI</i>	<i>Compliant</i>	<i>Non-Compliant Cavity barriers missing at extent and window head, Fire stops missing or incomplete</i>
<i>3. Rendered masonry</i>	<i>Non-Compliant Windows too low</i>	<i>Compliant</i>	<i>Compliant</i>
<i>4. Balcony Balustrade</i>	<i>NA</i>	<i>Compliant</i>	<i>Non-Compliant Balustrade not imperforate.</i>

## 5 Assessment

- A description of the assessment of the building identifying the:
  - Positive, negative and neutral contributing factors relating to the fire performance of the materials, components, and systems, and how they are configured together on the facades of the building.
  - Positive, negative and neutral contributing factors relating to the configuration of the facades and the extent and location of the combustible cladding and other materials in the external walls
  - Positive, negative and neutral contributing factors relating to the fire strategy for the building,
  - consideration that the various positive, negative, and neutral risk factors have on the perception of where the overall risk lies for each group of factors.
  - Application of fire engineering analysis as part of further technical assessments.

## 6 Conclusions.

Draw conclusions stating weather the building is either:

- a. a “high” risk, requiring remedial action to remove and replace the cladding system, or take any such other remedial action as necessary, to reduce the risk to occupants to a tolerable level; or
- b. a “medium” risk (see Below) or
- c. a “low” risk, not requiring any form of remedial action, given that the likelihood of fire spread and the consequences for the safety of occupants are clearly within benchmark expectations (see PAS 9980 Clause 7 for commentary on risk-based benchmark criteria).

The Contractor should highlight where there is the potential for further investigation, whether by more in-depth technical assessment or fire testing, to lower the risk rating for external walls deemed “high” risk.

Where, based on the available evidence, it is possible to conclude that the risk is not “high” ,but, equally, it is not possible to conclude that it is “low” , adopting a “medium” risk rating is likely to be necessary. In these cases, the Contractor should seek to determine which of the following can be concluded:

- a. that there is a potentially heightened risk, but, nevertheless, there is scope for the residual risk this leaves, if no action is taken, to be tolerable when considered in the broader context of the building’s FRA; or
- b. there is a potentially heightened risk, the magnitude of which is such that further investigation is needed, whether, for example, by more in-depth technical assessment or fire testing, to refine the appraisal of fire risk and give a more conclusive outcome.

The conclusions should also include either:

- details of the level of remediation required to enable design solutions to be developed by others, or
- justification where no additional works are required

## 7 Appendices

### 7.1 Appendix 1 - Inspection Location Plan

Provide a reference plan indicating the location of the inspection, for example



Figure 4 Inspection Location Plan

## 7.2 Appendix 2 - Site Inspection Records

Provide a table indicating the following

- Photographs of the location at each stage of the dismantle.
- Commentary on the photographs identifying materials present and any discrepancies between the as built situation and the BOD.

Table 6. Inspection Records

Ref	Location	Photographs	Observations / Comments	Detail
1	Timber clad External wall East Elevation		<ul style="list-style-type: none"> <li>• Location Photograph. Inspection situated on party wall line between Flat 60 &amp; 58.</li> <li>• Fire stopping and cavity barriers which were to be inspected during the investigation are as indicated on the photograph and detail drawing in light and dark green.</li> <li>• Red lines indicate cavity barriers / fire stops were <u>not</u> found in these areas,</li> </ul>	
3	Timber clad External wall East Elevation		<ul style="list-style-type: none"> <li>• Insulation moved aside to reveal the foil face of the plasterboard.</li> <li>• Next photograph seen from the direction of the large arrow.</li> <li>• 46 x 75 mm Vertical, sawn, soft wood treated studs.</li> <li>• partial-fill glass wool insulation.</li> </ul>	

Ref

Location  
Elevation A  
First floor

Photographs



Observations / Comments

HPL (Trespa) panel does not achieve required fire rating. Identification mark on back of panel reads TRESPA TIPO STANDARD

Detail

Extract from Trespa Data Sheet

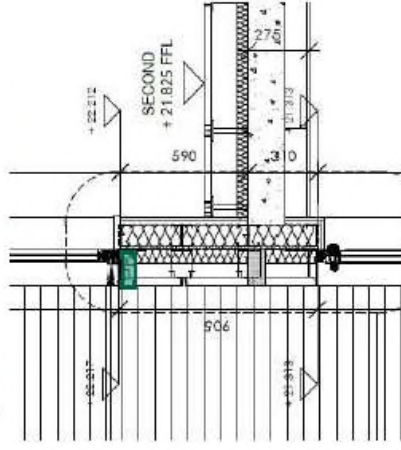
Grade: E3 (Maroon)
Standard: DN 431-6
Colour/Decor: All B
Euroclass
Euroclass
D+2, 60

Ref  
Roof level -  
Above door



Horizontal cavity barrier installed incorrectly. Excessive (73mm) gap between front face of cavity barrier and front face of rain screen.

Ref  
Extract from Architects vertical aluminium panel detail 10365\_430.  
Cavity barriers have been indicated where omitted from detail.



## 7.4 Appendix 3 - Material Testing Results

Insert any external testing results.