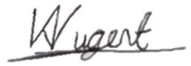
Individual Adaptation and Conversion Report

BEN509: Conversion and Adaptation

Kyle Nugent – B00737253 - Friday 7th May 2021

Declaration:

"I declare that this is all my own work and that any material I have referred to has been accurately referenced. I have read the University's policy on plagiarism and understand the definition of plagiarism. If it is shown that material has been plagiarised, or I have otherwise attempted to obtain an unfair advantage for myself or others, I understand that I may face sanctions in accordance with the policies and procedures of the University. A mark of zero may be awarded and the reason for that mark will be recorded on my file."

Student Signature: 

Date: 07/05/2021

Contents

1. Building Overview

1.1 Introduction

Property Address:

Knappa Vale, 36 Knappagh Road,

Knockaneagh, Co. Armagh

Current Status:

Unoccupied

Fig2: Building Condition (Author, 2021)

Fig3: Building Location (Google, 2021)

Fig1: Knappa Vale (Author, 2021)

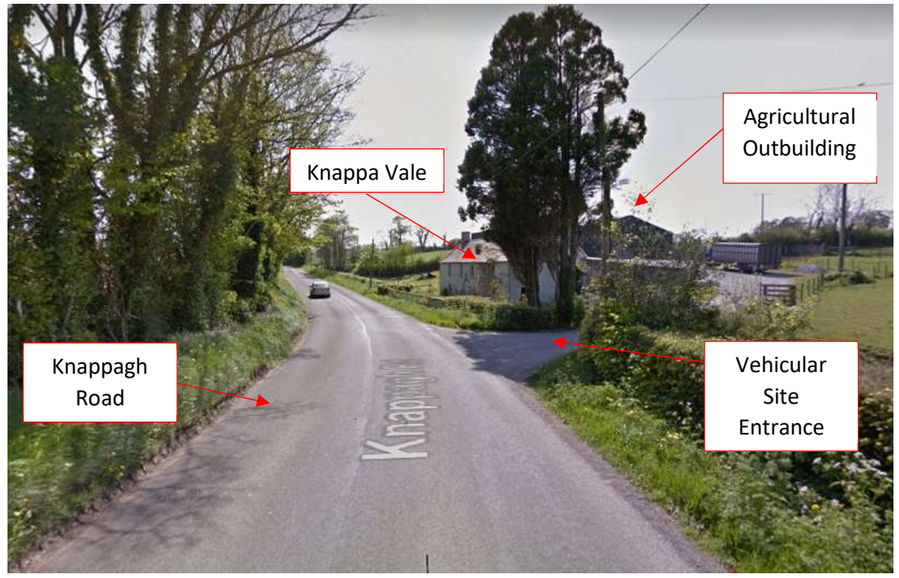


Fig4: Street View (Google, 2021)

This document aims to summarise a conversion/adaptation proposal for a dwelling, located within Co. Armagh, called Knappa Vale. The building has a degree of architectural significance within the area; listed as B2.

Due to a long period of neglect, the building condition has gradually worsened. A condition survey was undertaken at the beginning of 2021, where all defects were recorded.

1.2 Historical Photographs

Fig5: Historical Photographs of Object (HERoNI, 2021)

1.3 Current Floor Plans

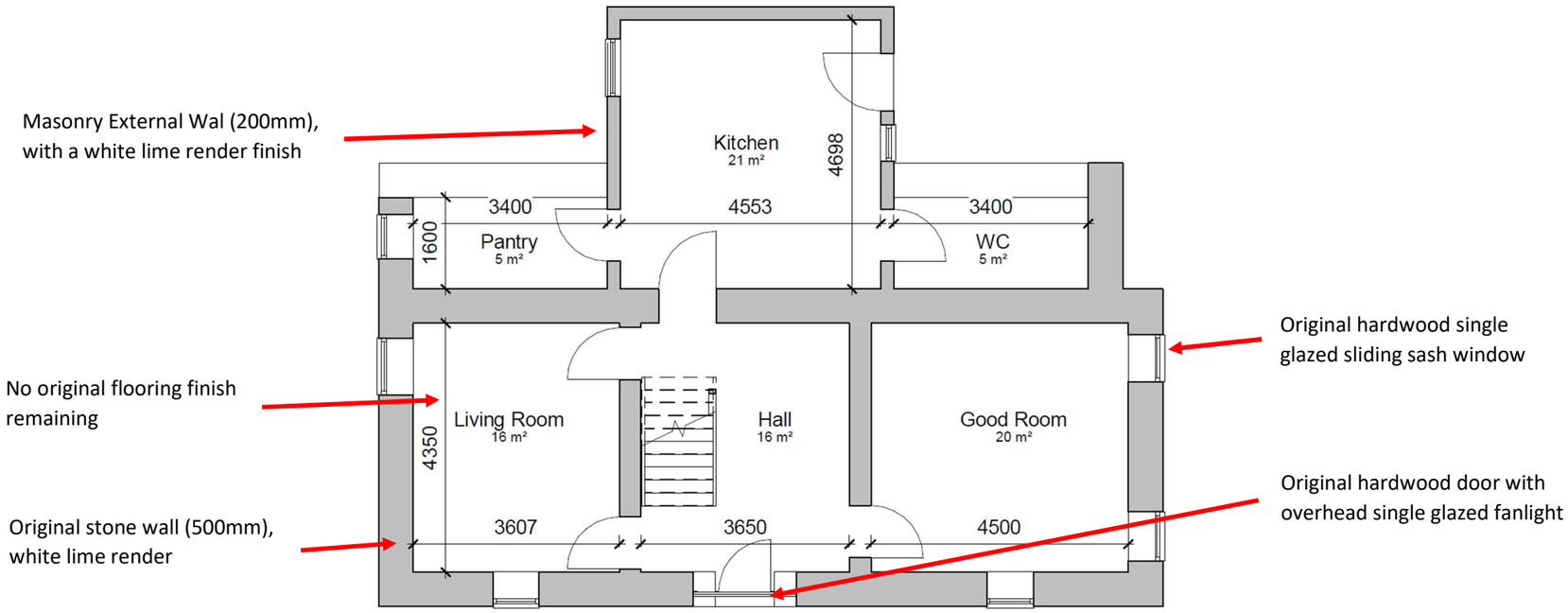


Fig6: Current Ground Floor Plan (Author, 2021)

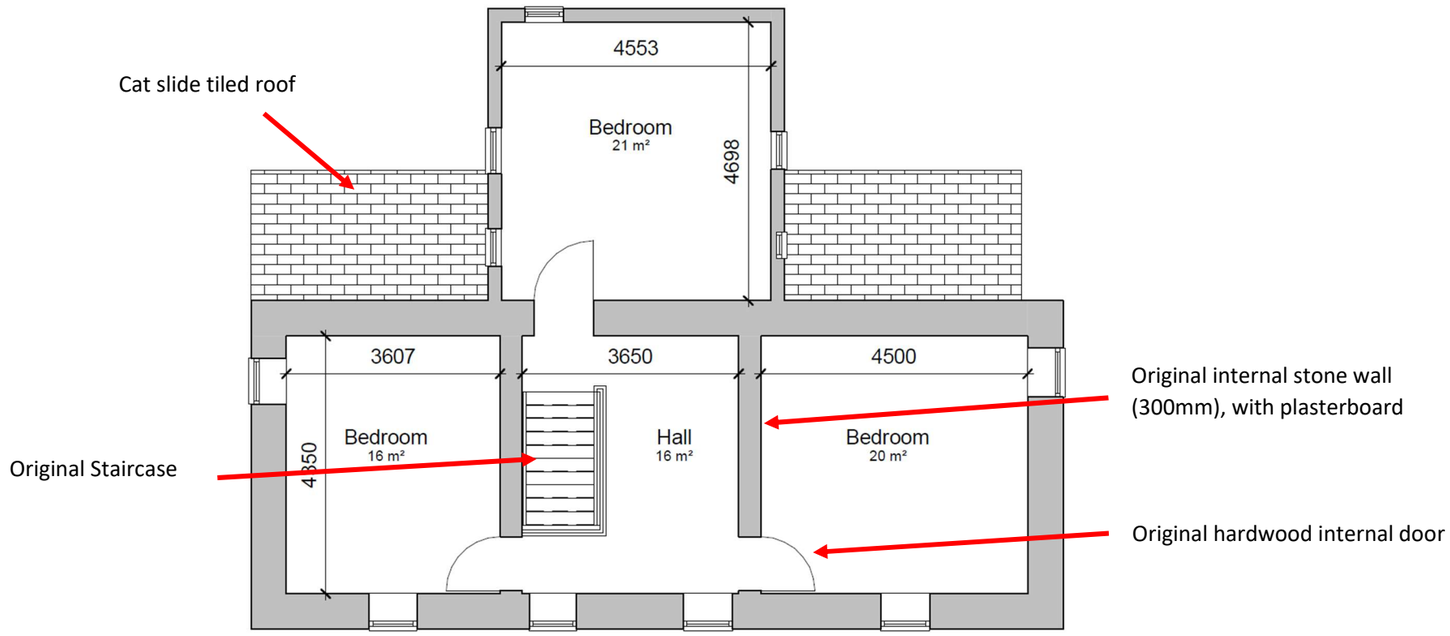


Fig7: Current First Floor Plan (Author, 2021)

1.4 Original Elevations

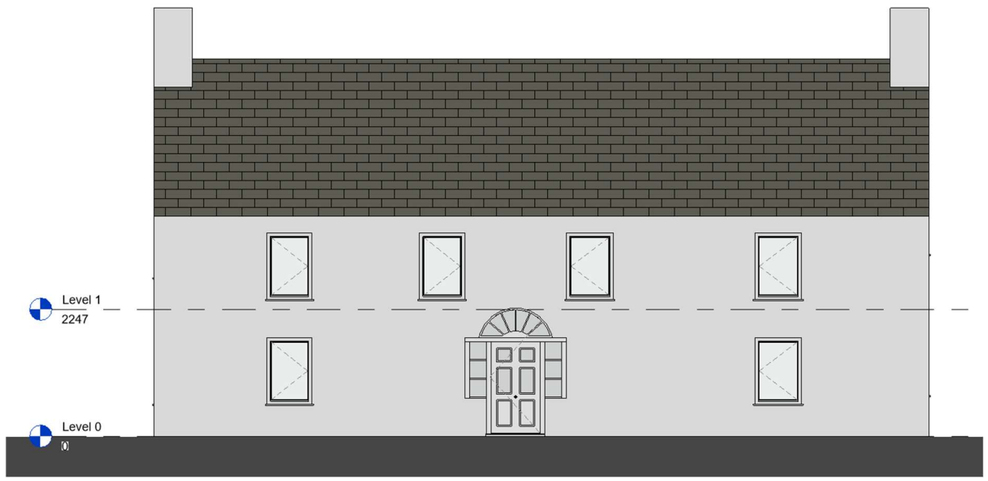


Fig8: Original South Elevation (Author, 2021)

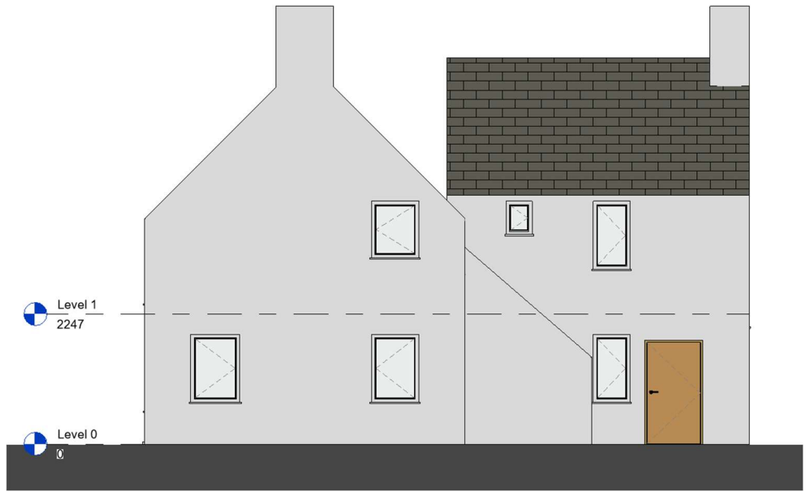


Fig9: Original East Elevation (Author, 2021)

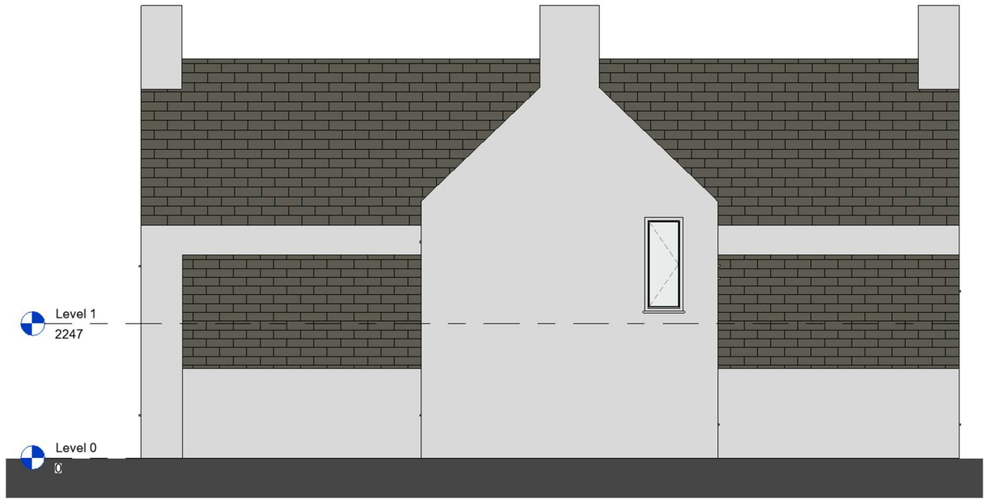


Fig10: Original North Elevation (Author, 2021)

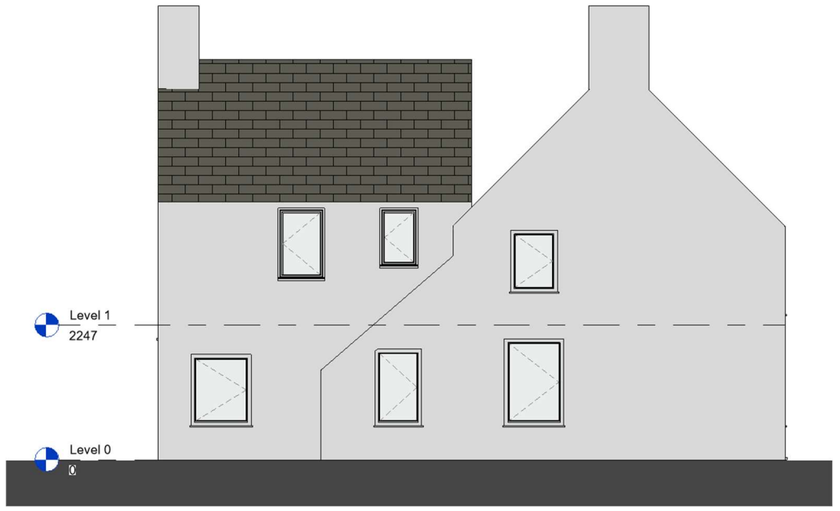


Fig11: Original West Elevation (Author, 2021)

1.5 Condition Elevations

Fig12: Condition South Elevation (Author, 2021)

Fig13: Condition East Elevation (Author, 2021)

Fig14: Condition North Elevation (Author, 2021)

Fig15: Condition West Elevation (Author, 2021)

1.6 Building Condition

Fig16: Wall Render (Author, 2021)

Large amount of lime render has fallen off the south facing wall due to heavy moisture penetration and lack of care.

Fig17: Vegetation (Author, 2021)

High amounts of vegetation ingress is present across the building; possible damage caused.

Fig18: Floor Joists (Author, 2021)

Exposed floor joists has brown rot. The strength and stability of the members may be compromised.

Fig19: Ceilings (Author, 2021)

In parts the ceiling has collapsed due to rain ingress. Exposed timber lathing is noticeably damaged.

Fig20: External Brick (Author, 2021)

Crumbled brick is present on the north facing wall, caused by frost damage. Large area of lime render has fallen off.

Fig21: Mould (Author, 2021)

Heavy amount of mould is present on internal stone walls. Discoloration and crumbled plaster is also seen within this area.

Fig22: Windows (Author, 2021)

Sash windows majorly damaged across the object. Affected frames are the only surviving element in various cases.

Fig23: Roof (Author, 2021)

The damaged roof is the main cause of moisture damage. Considerably amount of roof tiles missing on south side.

2. Planning and Building Regulation

2.1 Project Proposal

The proposal entails a change of use for the building. The object will house a new ground floor public café space, with a kitchen suitable food and drink preparation. A room has been designated for storage purposes on the ground floor as well. The use of the first floor will also be changed to a small office space. This includes a room holding 4 workstations, a meeting room, a tea point, and a WC. All proposed alteration works must accord with BS 7913:2013 (BSI, 2013).

Fig24: Proposal Aerial View (Author, 2021)

Fig25: Café Entrance (Author, 2021)

2.2 Exterior Images

Fig26: Building Front (Author, 2021)

Fig27: Building Back (Author, 2021)

Fig28: Outdoor Seating (Author, 2021)

Fig29: Carpark (Author, 2021)

Fig30: Carpark (Author, 2021)

Fig31: Building Front (Author, 2021)

2.3 Proposed Elevations

Fig32: Proposed South Elevation (Author, 2021)

Fig33: Proposed East Elevation (Author, 2021)

Fig34: Proposed North Elevation (Author, 2021)

Fig35: Proposed West Elevation (Author, 2021)

2.4 Proposed Floor Plans

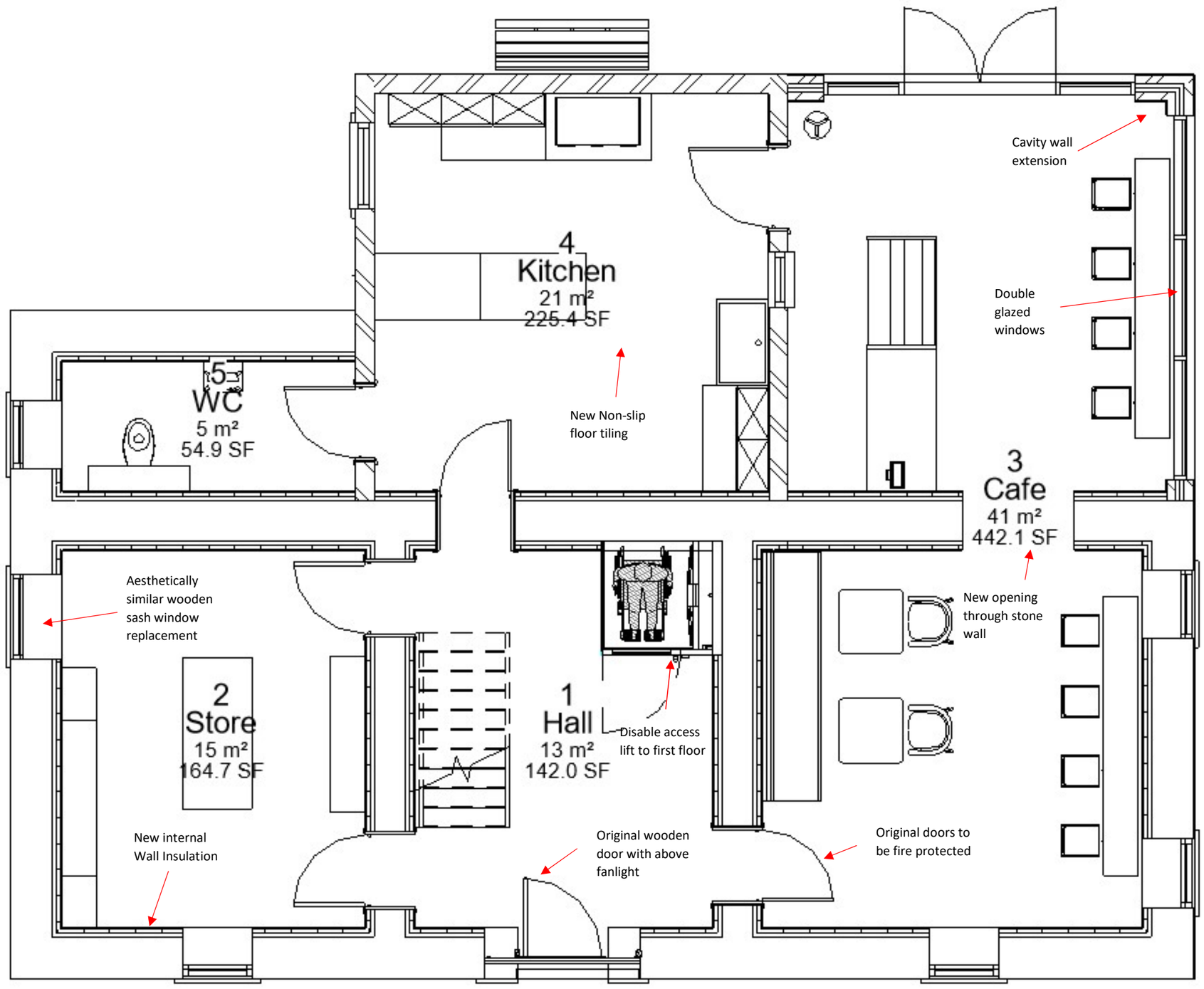


Fig36: Proposed Ground Floor (Author, 2021)

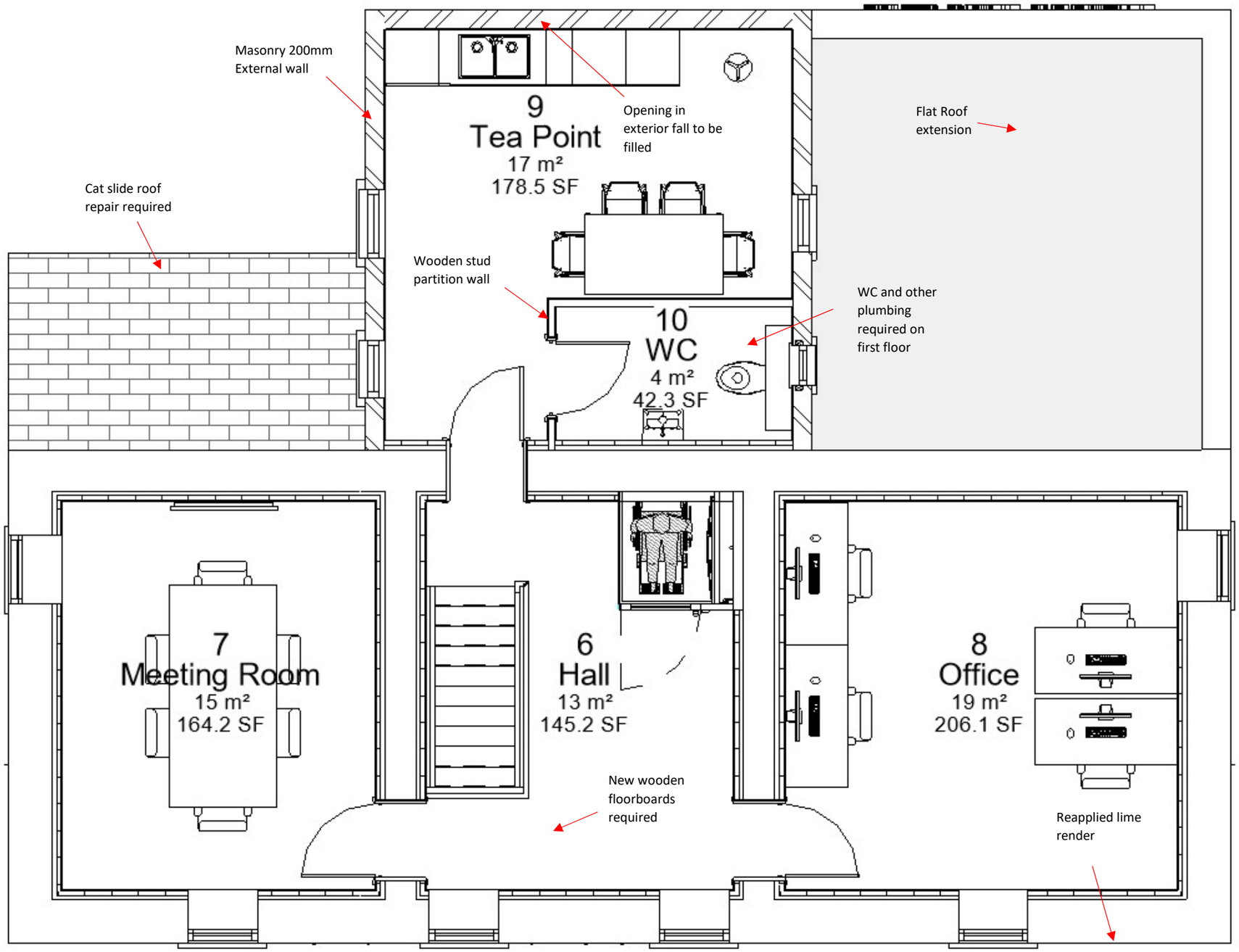


Fig37: Proposed First Floor (Author, 2021)

2.5 Interior Images

Fig38: Café (Author, 2021)

Fig39: Café (Author, 2021)

Fig40: Storage (Author, 2021)

Fig41: Kitchen (Author, 2021)

Fig42: First Floor Hallway (Author, 2021)

Fig43: Meeting Room (Author, 2021)

Fig44: Tea Point (Author, 2021)

Fig45: Office (Author, 2021)

2.6 Building Access

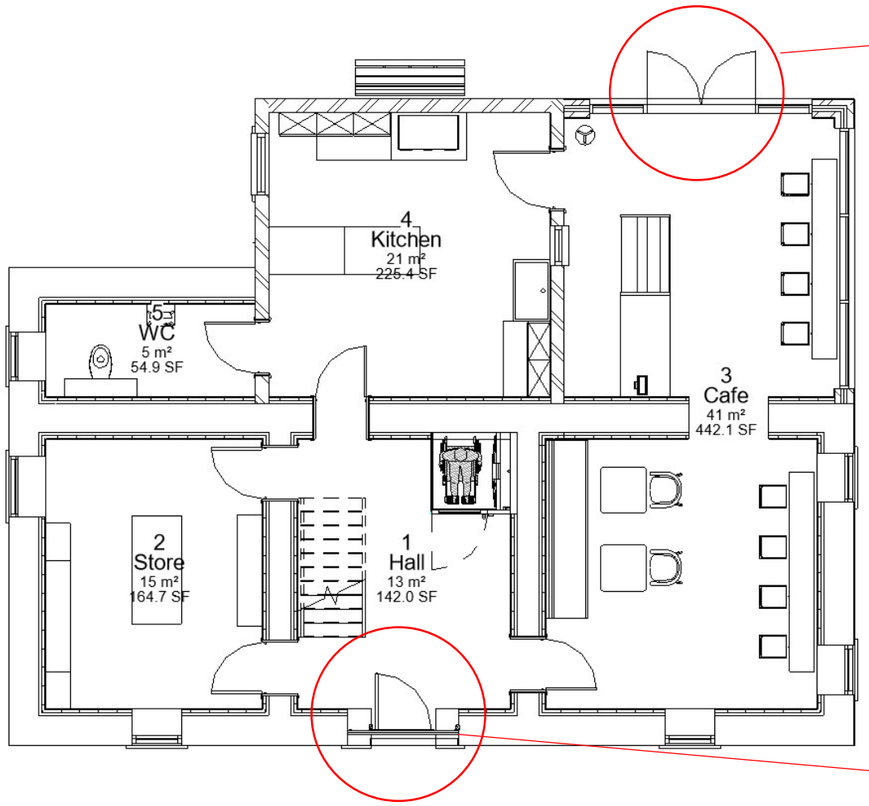


Fig46: Proposed Ground Floor (Author, 2021)

There is two points of entry into the building. One being the primary entrance to the public café at the back of the building (closest to car parking facilities) and the existing front entrance, which will be primarily for the first-floor office workers. Both entrances are level access, and comply with the clear width to accessible entrances regulations, stated within Table 3.1 of Technical Booklet R.

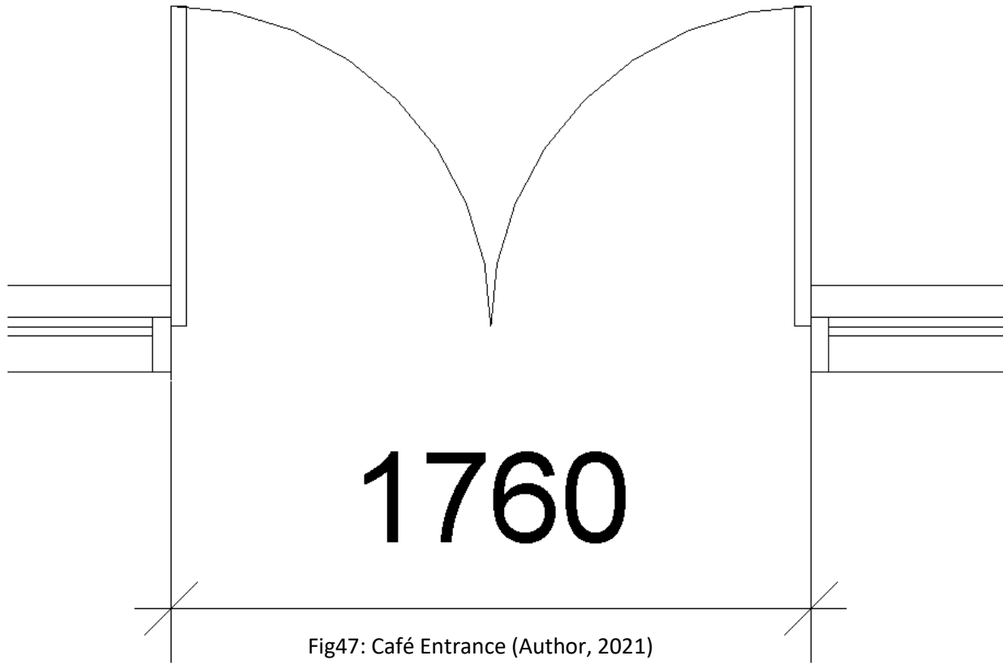


Fig47: Café Entrance (Author, 2021)

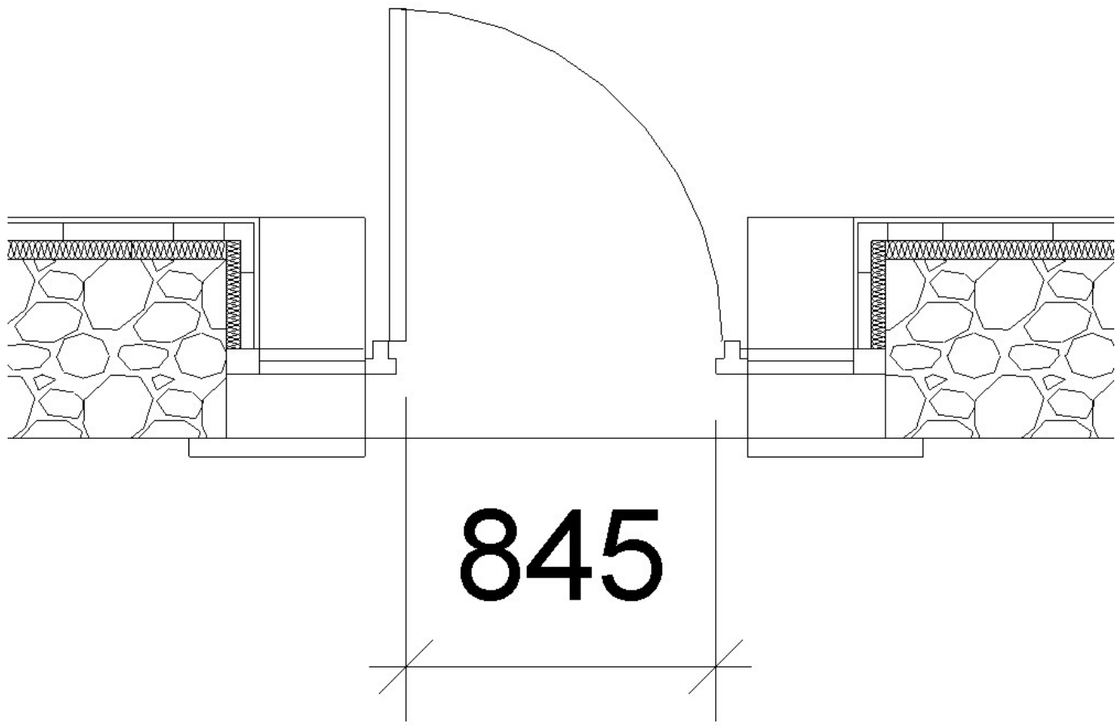


Fig48: Front Entrance (Author, 2021)

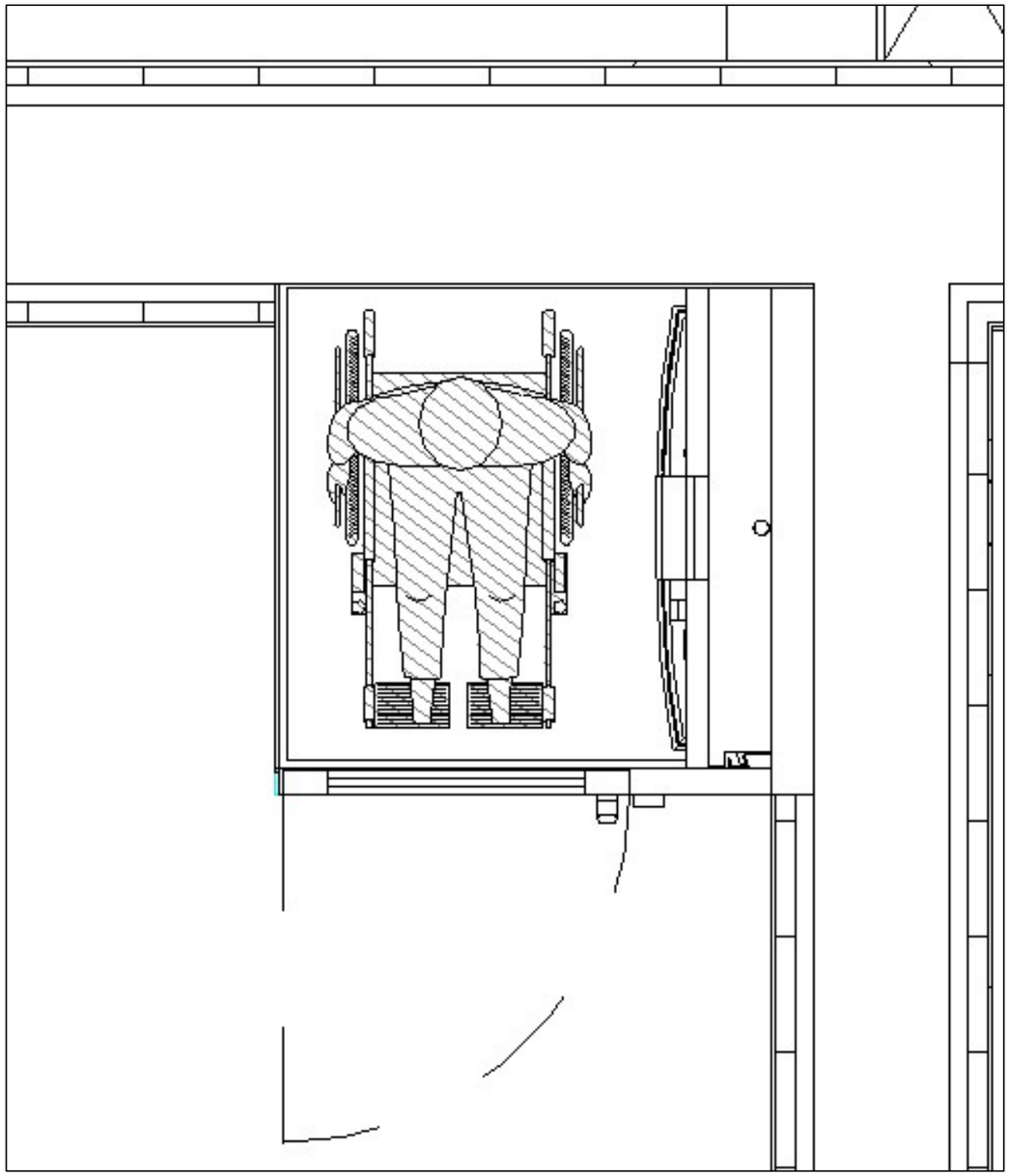


Fig49: Wheelchair Lift Plan (Author, 2021)

Fig50: Wheelchair Lift (NBS, 2021)

Due to the addition of the office, accessible access must be provided according to BS 8300-2 (BS1, 2018). A Cibes powder coated steel A5000 Vertical Platform Lift has been specified for this project. This lift contains fire rated doors and stainless steel, making it suitable to be within the protected hall. The lift is intended for any person with impaired mobility and fully complies with EN 81-84 and Part M of BS 6440:2011 (BSI, 2011) (NBS, 2021).

2.7 Windows

The wooden sliding sash windows of the building are heavily damaged, and therefore unlikely to be recovered. Replacement windows should not affect the character of the building. Due to the new use of the building, it is highly favorable that the replacement windows are double glazed. For this to happen, it needs to be granted within listed building consent and agreed with the department of Communities. Replacement windows must replicate materials, finishes, sash boxes and glazing bars (Department of Communities, 2021). Due to these requirements, all window replacements will be bespoke.

Fig51: Wooden Sash Window
(Timber Window Direct, 2021)

Fig52: Window Condition 1 (Author, 2021)

Fig53: Window Condition 2 (Author, 2021)

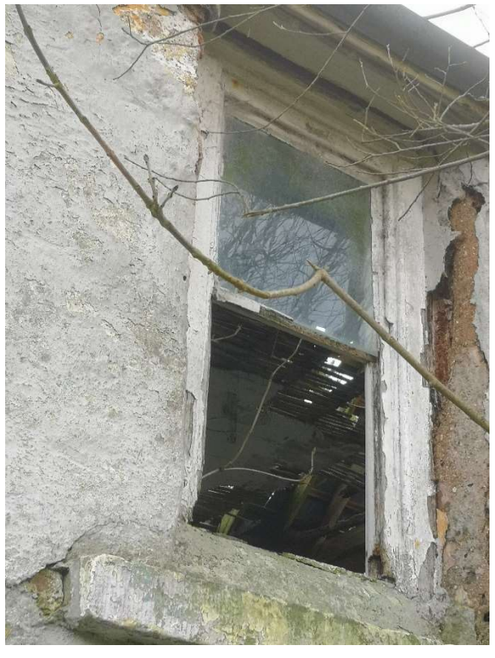


Fig54: Window Condition 3 (Author, 2021)

2.8 Walls/Roof

Seen within the condition survey, the walls are currently in a poor condition. There is large areas where the external lime render has fallen off the exterior. This is thought to be the effects of neglect and moisture damage. Crumbling of the red brick is noticeable from ground level, most likely caused by frost damage. These bricks will be expected, and repairs made through a patching technique using locally sourced reclaimed bricks (BRE, 1998). After the brickwork/stonework is properly cared to, a lime render will have to be reapplied. Before the first and second layer of render is applied, it is important that any lose render is removed.

Looking at the insulation of the solid stone walls, guidance was found within a Pebble Trust publication. This system properly considers the importance of the building fabric being breathable, to allow the wall to dry when required. If the renovation fails to acknowledge this, issues regarding energy loss, comfort levels, health effects and conservation problems will occur (Morgan, 2018). These issues are also relevant to the roof renovation. The roof has to be fixed, to stop water entering the building, and upgraded to improve energy efficiency. However, insulation has to be internal to avoid erasing the south elevations character. This is a reason why a facia or soffit could not be added to the building.

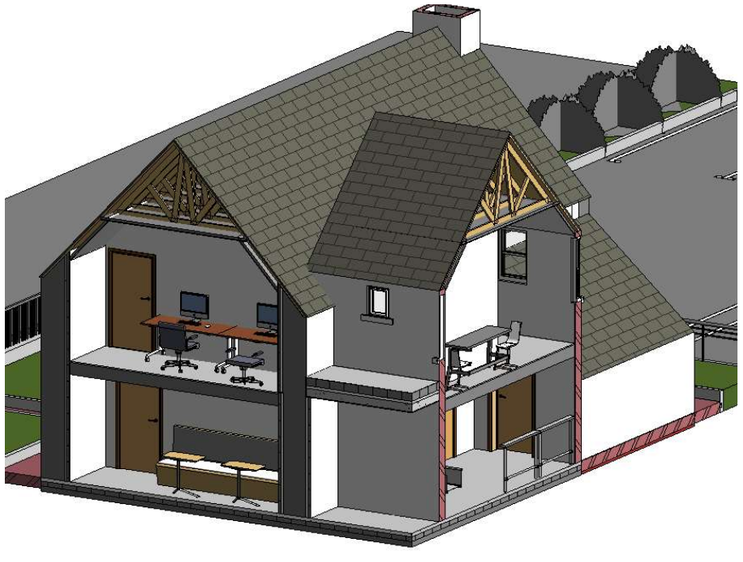


Fig55: Roof Model (Author, 2021)

Fig56: Wall Condition 1 (Author, 2021)

Fig57: Roof Condition (Author, 2021)

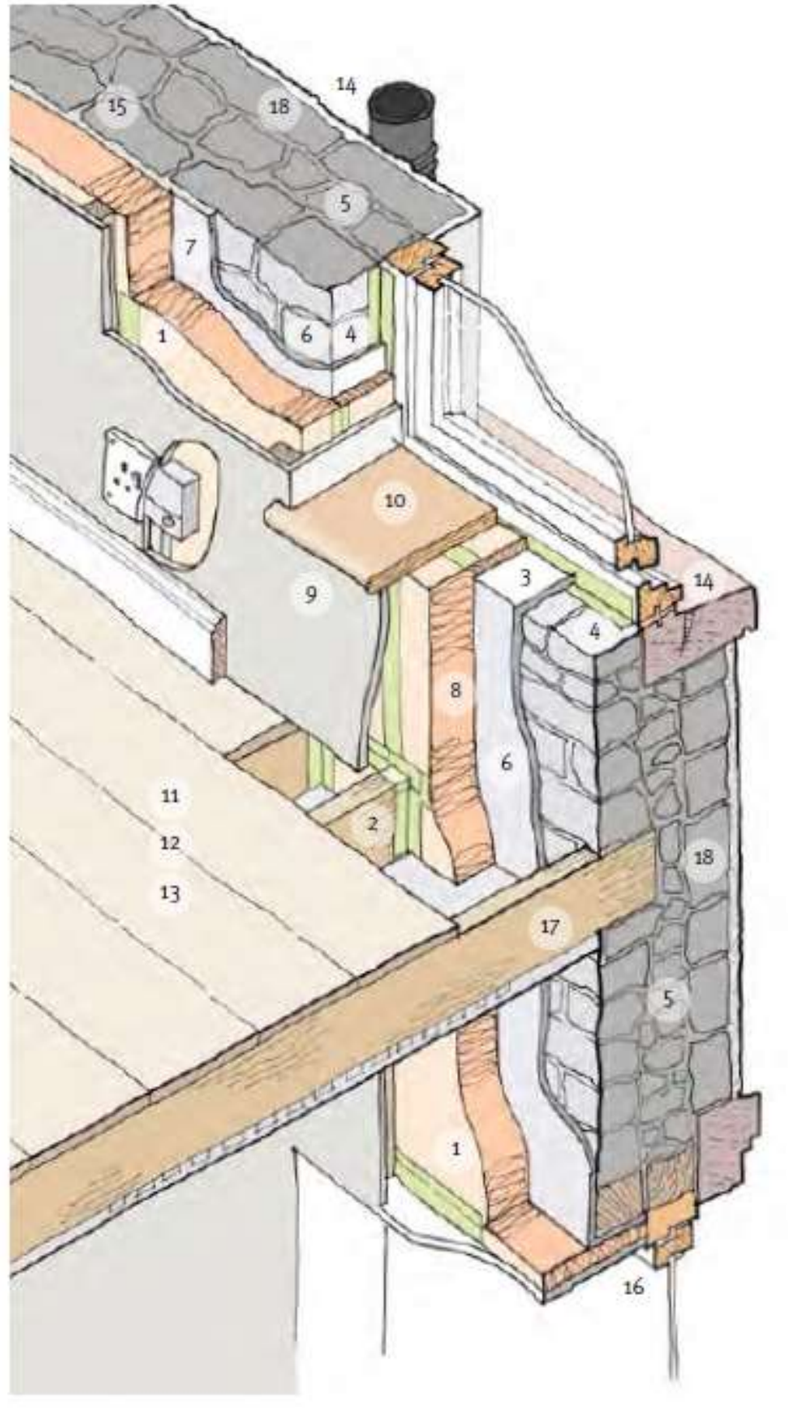


Fig58: Internal Wall Insulation Method (Morgan, 2018)

2.9 Fire Separation

As stated within Technical Booklet E, district councils must account for the preservation of a protected building's character when understanding alterations according to building regulations (Department of Finance and Personnel, 2012). For this reason, it was deemed unacceptable to carry out major changes to the building's internal layout. However, measures has been specified to improve the buildings fire performance, particularly within the main escape route.

A series of wall and ceiling internal lining will be present within the hall area. All lining products specified will be in accordance with BS EN 13501-1 (BSI, 2018). 12.5mm British Gypsum Glasroc F MultiBoard, which is suitable for Class 0 areas, will be used within the hall. This lining, which will be screwed into timber battens, was confirmed as non-combustible when tested against BS 476: Part 4 (BSI, 1970).

Within the hall area there are multiple doors, which cause fire safety issues as this is a protected space. Table 4.5, within Technical Booklet E, states that these doors should have a 30-minute fire resistance, when tested against BS 476: Part 22 (Department of Finance and Personnel, 2012). Rather installing new fire doors, the current doors will be repaired to preserve character (Department for Communities, 2019). A new base coat will be added and then a thermoguard fire varnish will be applied (Thermoguard, 2021). Doors should be fitted with an automatic release mechanism which fully complies with BS 5839-3 (BSI, 1988). The mechanism will:

- Be activated by an automatic fire detection unit
- Manually close the door

Fig59: Glasroc F MultiBoard (British Gypsum, 2021)

Fig60: Dorgard Auto Release Fire Door Closer (Handle Hardware, 2021)

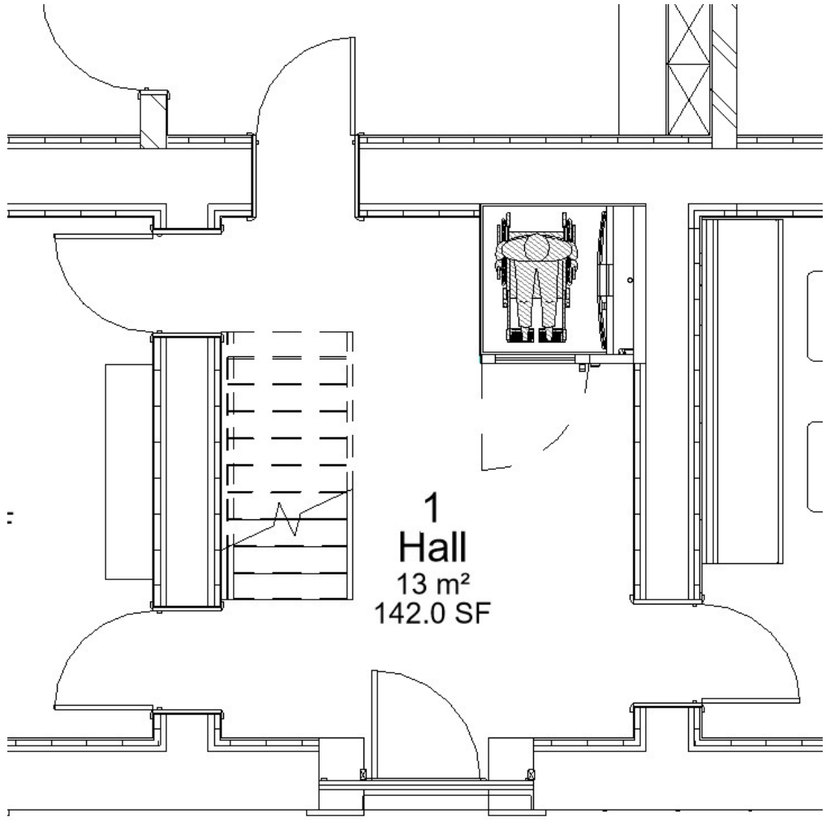


Fig61: Enlarged Hall Plan (Author, 2021)

Fig62: Hall (Author, 2021)

3. Focus Areas

3.1 Overview

When undertaking the condition survey, two areas highlighted as needing urgent attention was the roof and the walls. Both elements have been heavily damaged due to a long period of neglect. Fixing the roof and walls will stop moisture ingress creating additional damage across the building.

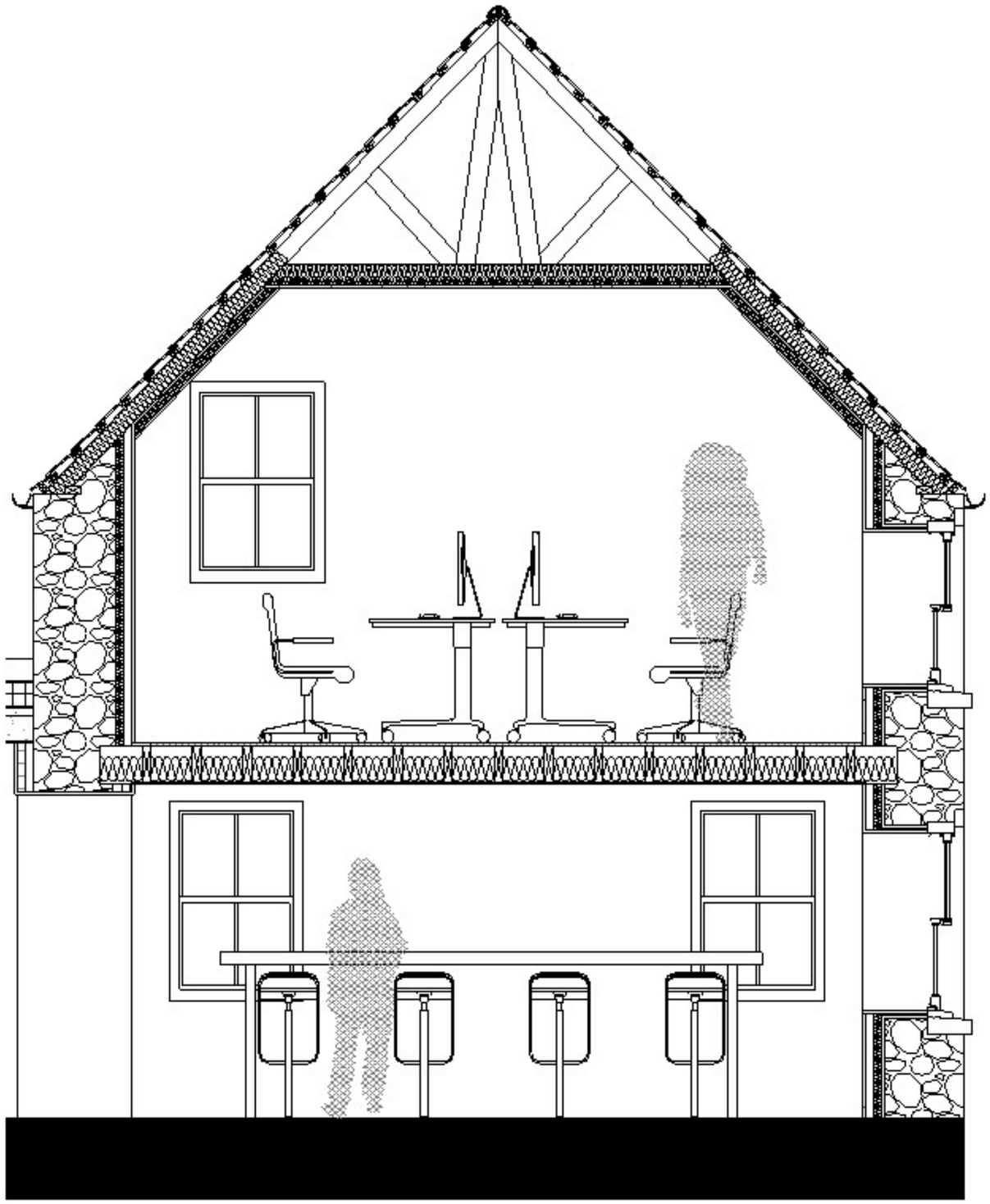


Fig63: Building Section (Author, 2021)

3.2 Roof Repair and Loft Insulation

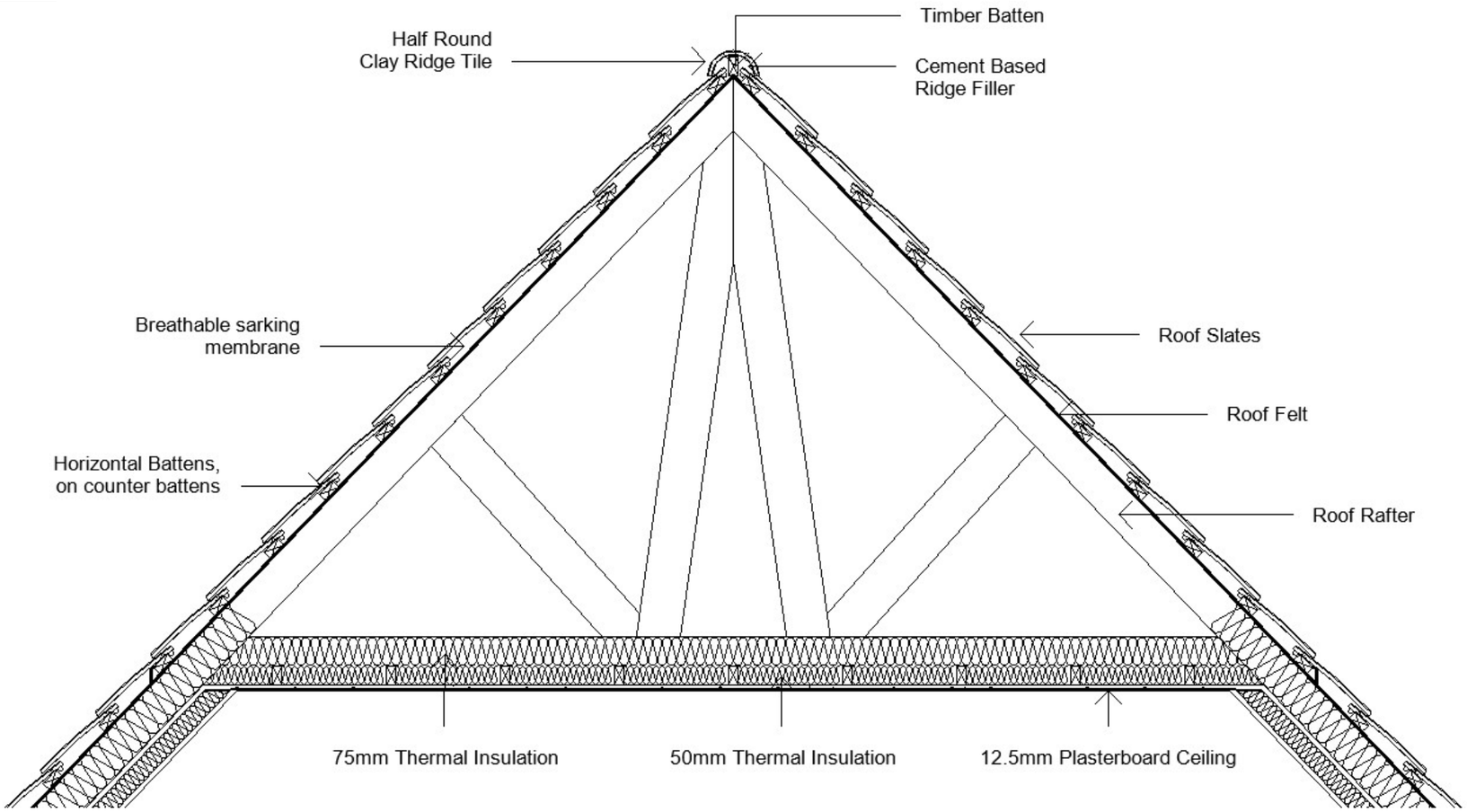


Fig64: Roof Detail (Author, 2021)

There is a large amount of missing roof tiles at the front side. This has allowed water to enter the building, damaging the roof trusses and ceilings. Roof tiles, which have not been damaged, will not be replaced. However, all roof tiles will be removed, during works, for treatment. Etex Rivendale Black Slates, which comply with strength requirements stated within BS EN 492 (BSI, 2018), will be used as replacement tiles (JJ Roofing Supplies, 2021). They match atheistically and will be placed in a decreet positions (BRE, 1998).

Timber trusses which are heavily damaged will need to be replaced. Haldane Fisher raised tie trusses, built in accordance to BS EN 1995-1 (BSI, 2014), has been specified. New timber can provide assistance to any existing truss deemed usable, through a check bolting system (Department for Communities, 2021).

To improve the energy performance of the building, insulation will be fitted in between rafters, and internally. A semi-rigid insulation roll is to be used to prevent any area within these tight spaces being left uninsulated (Morgan, 2018). 100mm Rockwool RWA45 Semi-Rigid Insulation, which is certified to EN 131162 and is rated Euroclass A1 non-combustible, has been specified (Rockwool, 2021). This insulation will also be used within the ceiling and floors. Natural Rockwell insulation board has been specified for the inner face of the ceiling. This extra insulation will help reduce heat loss within the building.

British Gypsum's 12.5mm Gyproc WallBoard has been specified for the ceiling and wall plasterboard. This plasterboard will provide 30 minutes fire resistance to BS 476: Part 22 (BSI, 1987) (British Gypsum, 2021).

Fig65: Roof Condition (Author, 2021)

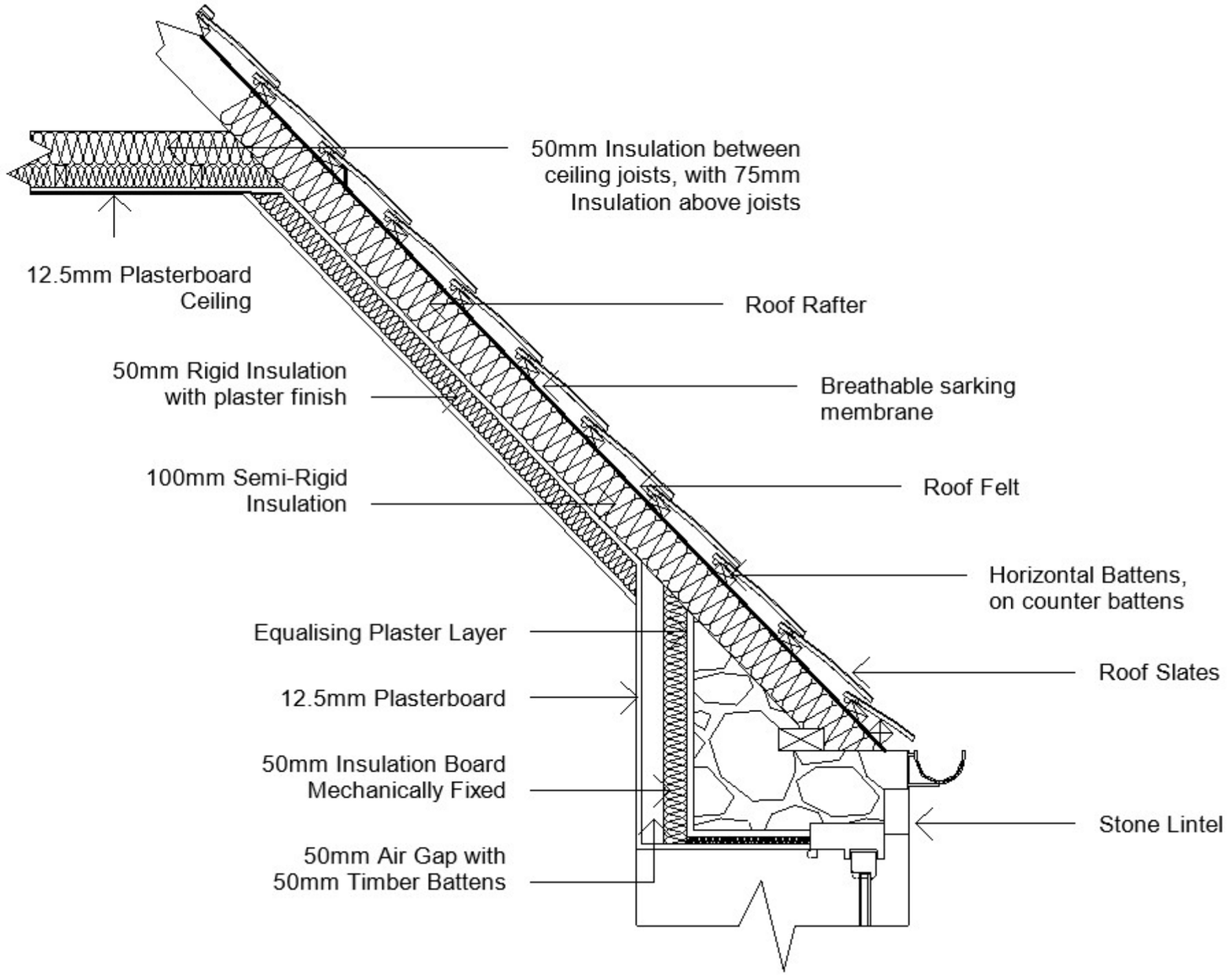


Fig66: Eaves Detail (Author, 2021)

3.3 Internal Wall Insulation and Opening

When upgrading a historic fabric, modern building methods are not always suitable and may cause further damage through interstitial condensation. In order manage this issue, specified products must have moderate U values, breathable and have a density (Morgan, 2018).

The current wall makeup will not provide adequate levels of energy efficiency for the new building use. A new insulation layer will be placed against the internal side of the stone wall, with timber battens creating an air cavity between that insulation layer and a plasterboard finish.

Fig67: Window Condition (Author, 2021)

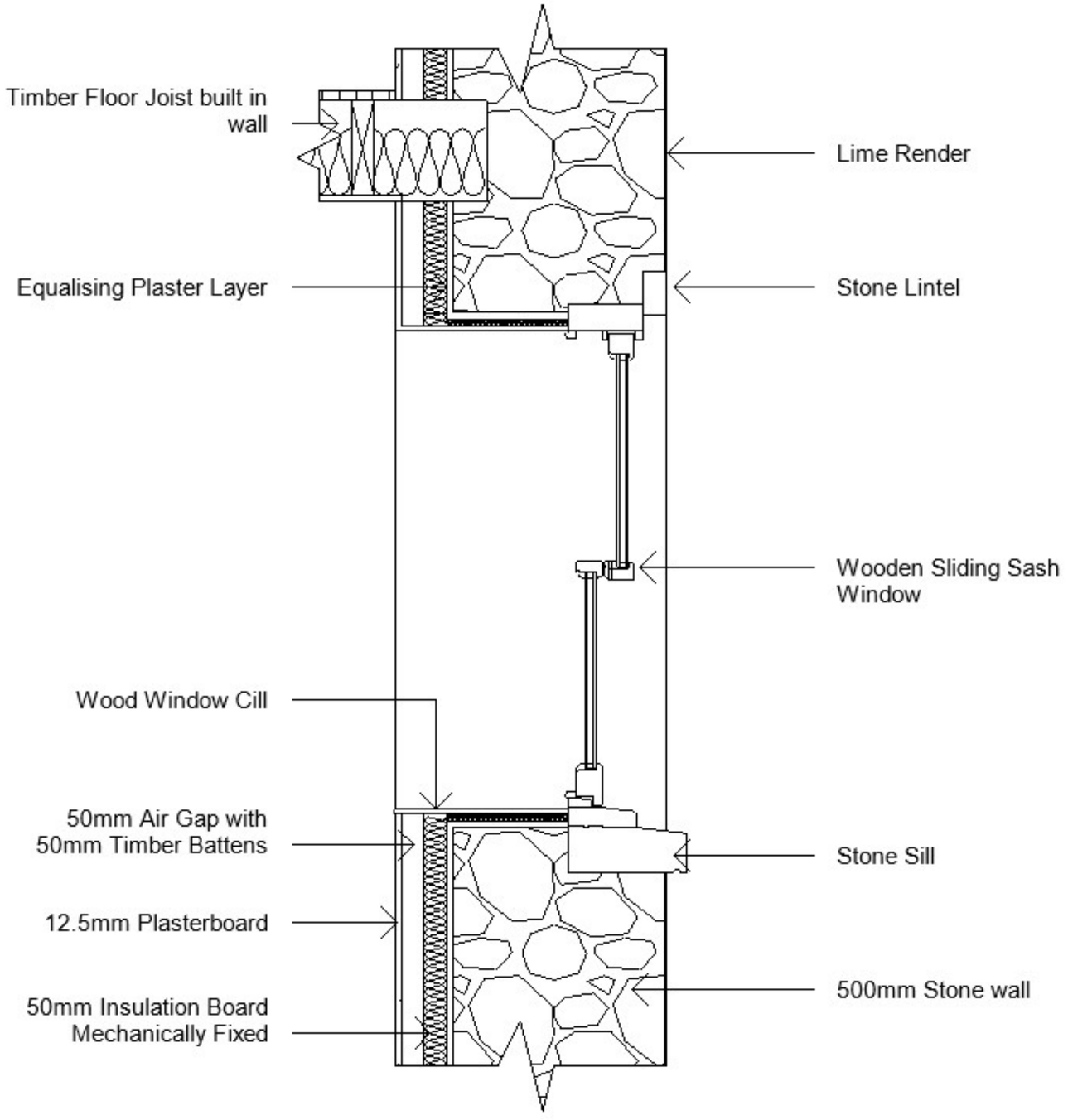


Fig68: Wall Detail (Author, 2021)

The interior side of the stone wall will need covered with an equalising plaster layer. Without this layer the walls would not be level, which would create difficulties when fixing insulation boards. It will also aid in extracting moisture from within the wall (Morgan, 2018).

50mm Xtratherm PIR Rigid insulation board will be mechanically fixed to the wall. No gaps should remain within this insulation layer, joins will be covered using a tape specified by the supplier. This insulation layer product BBA certification number is 08/4613 and is certified to BS EN ISO 9001 (BSI, 2015) and BS EN ISO 14001 (BSI, 2015) (Xtratherm, 2021). Insulation will also be added around window reveals. All window repairs/replacements will be undertaken before internal insulation works begin.

The wall plasterboard will be British Gypsum's 12.5mm Gyproc WallBoard, similar to plasterboard ceilings. They shall be fixed to 50mmx50mm timber battens at 600mm centres. Within the air gap, services can be installed. This feature makes this method popular when services and fittings are also being replaced (BRE, 1999).

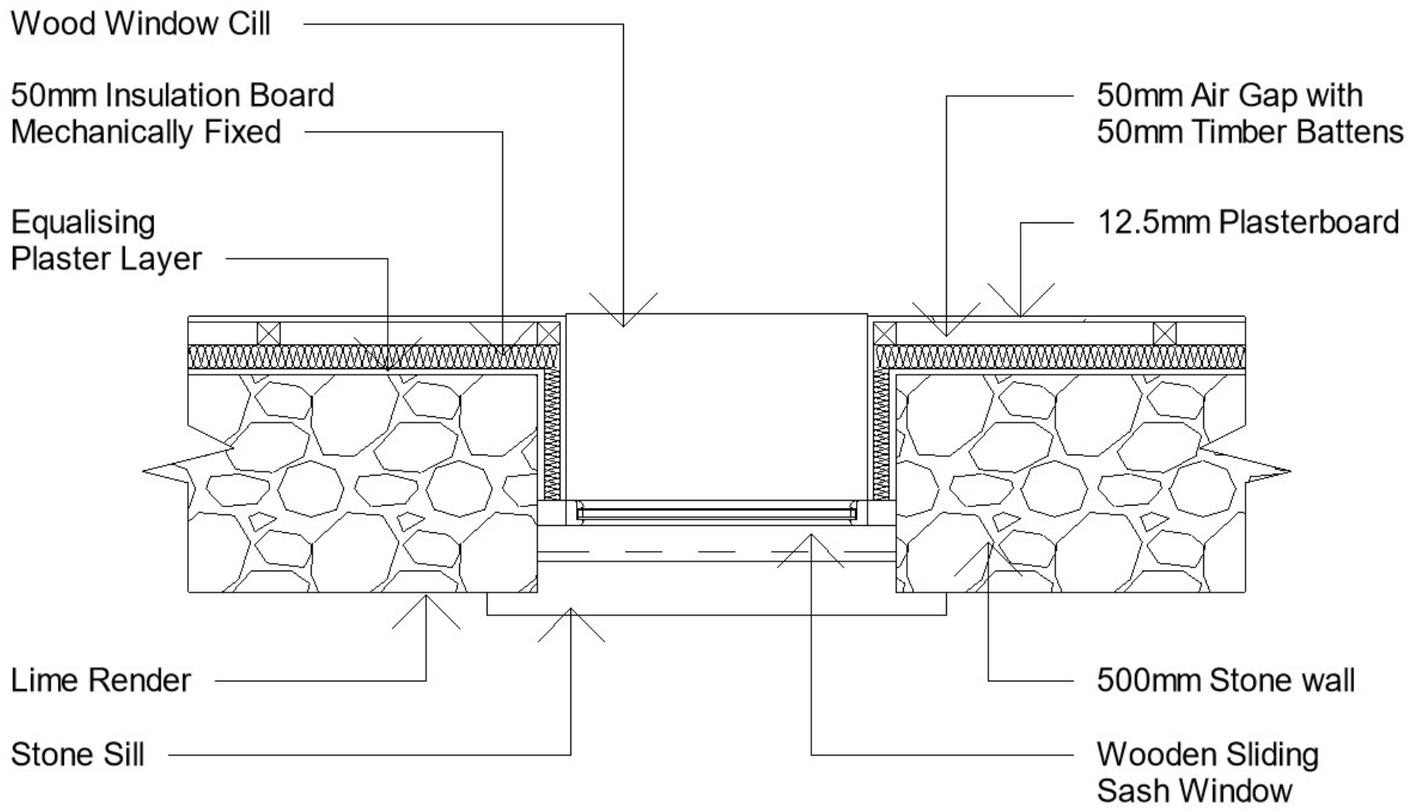


Fig69: Window Reveal Detail (Author, 2021)

Fig70: Internal Condition
(BRE, 1999)

Fig71: Stone Wall with Timber Studding
(BRE, 1999)

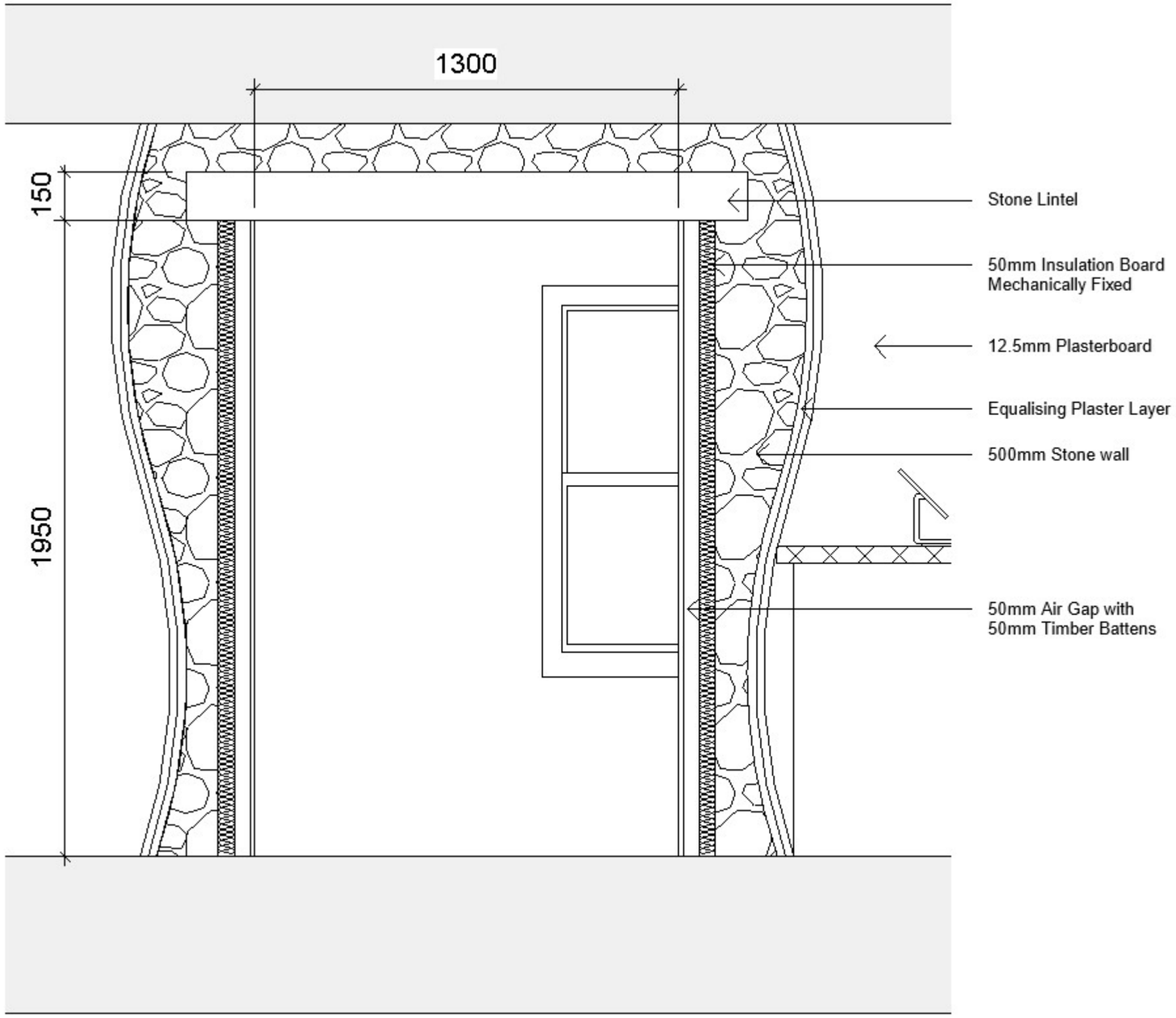


Fig72: Wall Opening (BRE, 1999)

Part of the renovation works includes a new opening through the 500mm stone wall. A structural engineer needs to be consulted. Appropriate wall bracing will be required when the stone is being removed. Props which conform to BS 4074 (BSI, 2000) may be used. A new stone lintel will be placed on top of the opening. Design to be in accordance with BS 5977 (BSI, 1981).

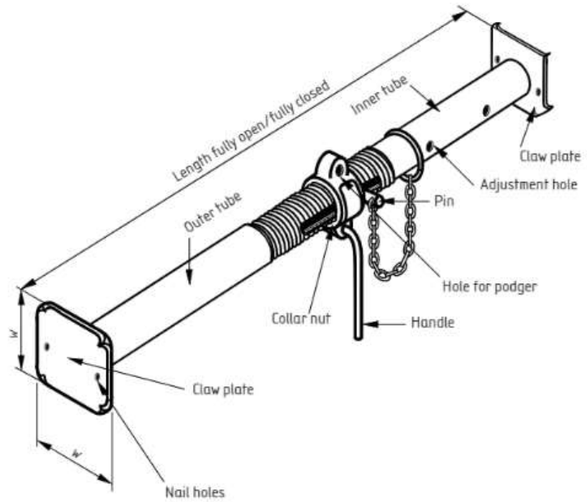


Fig73: Steel Strut (British Standard, 2000)

Appendix

Listed Building Consent Application

Form LB1

Application for Listed Building Consent

Official Use

Application No.: 01

Receipt No.: 01

- **Please read the notes for applicants overleaf before completing this form.**
- **You may find it helpful to discuss your proposals with the Department for Communities: Historic Environment Division before submitting your application.**
- **4 copies of this form and 4 copies of related plans must be submitted with this application.**
- **1 copy of form P2 must also be submitted.**

Please note that when you submit a planning application the information, including plans, maps and drawings, will appear on the Planning Register which is publicly available and, along with other associated documentation (with the exception of personal telephone numbers, email addresses or sensitive personal data), will also be published on the internet on the Public Access site (http://epicpublic.planningni.gov.uk/publicaccess/). The Department for Infrastructure and the 11 Councils will process your information in line with the General Data Protection Regulations (GDPR) requirements. A copy of the full Privacy Statement is available at www.infrastructure-ni.gov.uk/dfi-privacy. To request a hard copy, please contact the relevant Data Protection Officer as listed in the statement.

1 a. **Applicant's** name and address **1 b.** **Agent's** name and address *(if any)*

Name:	Kyle Nugent	Name:	
Address:	34 Knappagh Road	Address:	
	Co. Armagh		
Town:	Killylea	Town:	
Postcode:	BT60 4PD	Postcode:	
Tel:	###########	Tel:	
		Ref. No.:	

About the Application Site

2. Give the full postal address of the building *(outline in red on site location map and give name of townland if known)*

Knappa Vale,
36 Knappagh Road,
Knockaneagh,
Co.Armagh

3. Please give details of the proposed works (e.g. demolition, alteration, extension)

The proposed works include an alteration of the building. The energy efficiency, acoustic and fire separation will be improved across the building. The building will change use, from a dwelling type building to a ground floor public cafe and a first-floor rental office space. Immediate repair works are necessary across the building, this includes the roof structure, walls, and windows. A new extensive to the rear of the building is necessary, which will provide an accessible access to the building. A single wheelchair lift will also be installed to ensure disabled persons have access to the first floor.

Checklist

Please indicate the number of enclosures *(there should be 4 copies of each set)*

Set of location maps – number of maps in 1 set: 1

Set of floor plans – number of plans in 1 set: 2

Set of elevations – number of elevations in 1 set: 4

P2 form: _____

Fig74: Listed Building Consent 1 (Author, 2021)

4. Council Employee / Elected Member Interest

Are you / the applicant / applicant's spouse or partner, a member of staff within the council or an elected member of the council?

Yes ☐ No ☑

Or are you / the applicant / the applicant's spouse or partner, a relative of a member of staff in the council or an elected member of the council or their spouse or partner?

Yes ☐ No ☑

If you have answered yes, please provide details (name, relationship and role):

Declaration

I / We apply for listed building consent to carry out the works described in this application and the accompanying plans

Signed K Wright Date 07/05/21

On behalf of John Smith

Notes for Applicants

1. Any person who carries out or causes to be carried out works such as those in Paragraph 4 below without Listed Building Consent required under the Planning Act (Northern Ireland) 2011 is guilty of an offence.

2. Please refer to the publication:

   "Explanatory Notes on applying for Planning Permission, Approval of Reserved Matters & other Planning Consents"

   Although Listed Building Consent is not a planning approval, the information contained in the above publication generally applies.

3. It is particularly important in the case of work to listed buildings to clearly define on the drawings full details of the type of materials, finishes and colours to be used.

4. Listed Building Consent is required before the carrying out any work for demolition, alteration or extension of a listed building (including internal works or objects attached to the structure), which would affect its character as a building of special architectural or historical interest. The drawings submitted with your application must adequately describe all the proposed works for which consent is needed.

5. It may also be necessary to apply for Planning Permission for external and substantial works. If you are in any doubt about whether or not Planning Permission should also be sought, please discuss your proposal with your local Planning Office.

6. If you wish to discuss your proposals with the Department for Communities' Historic Environment Division they can be contacted by telephone on (028) 9082 3177 or (028) 9082 3126 or by e-mail to historicenvironmentenquiries@communities-ni.gov.uk.

Send your completed application to the relevant Council.

Fig75: Listed Building Consent 2 (Author, 2021)

Fig76: Site Location Plan (Author, 2021)

Fig77: Building Location (Google, 2021)

Fig78: Building Aerial (Google, 2021)

Fig79: Existing Site (Google, 2021)

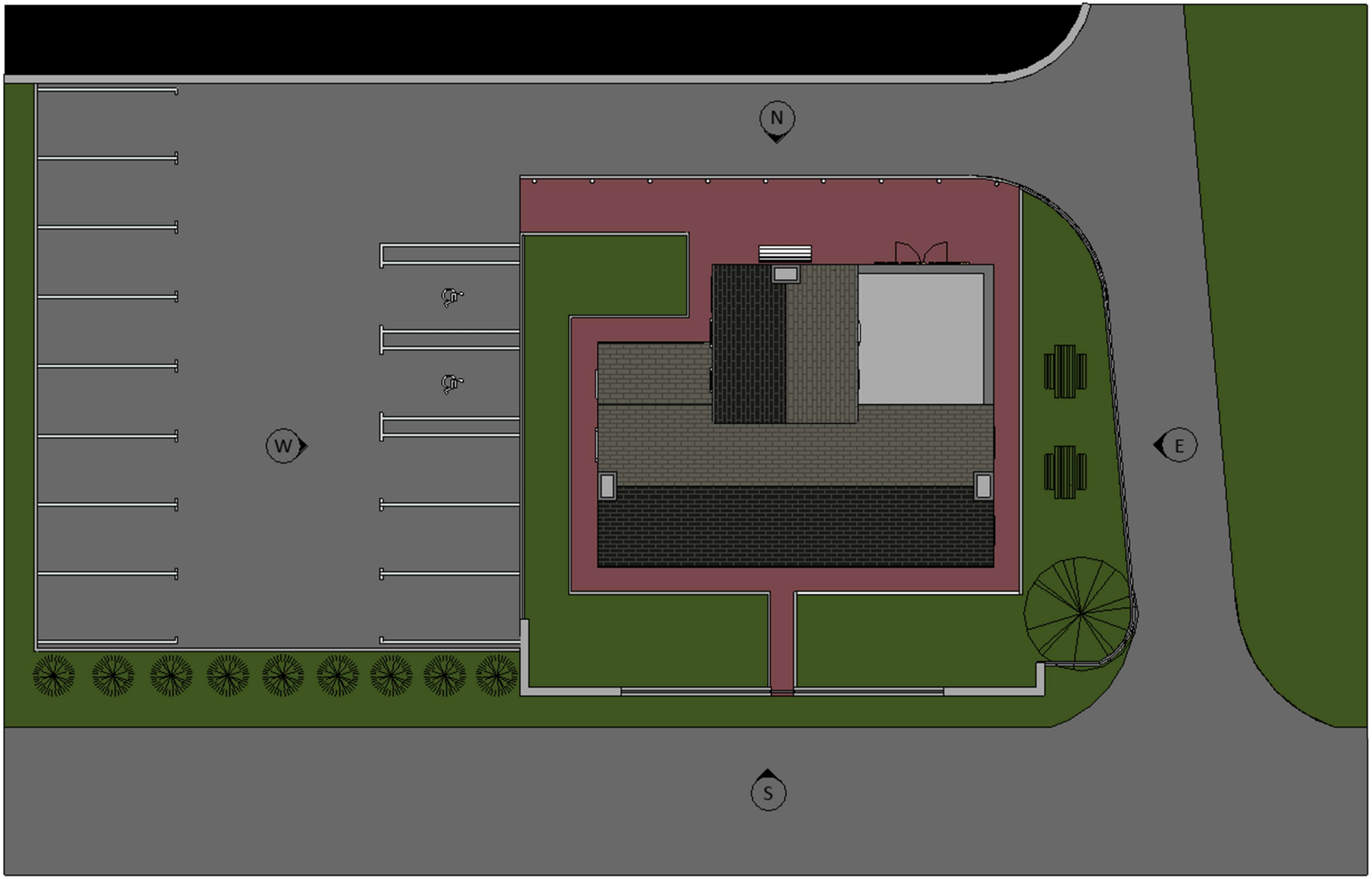


Fig80: Proposal Site Plan (Author, 2021)

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