Graeme Smart Ltd
Consultant Ecologists

219 Sunderland Rd, South Shields

Bat Survey Report

For Mr Anthony Capaldi

August 2017

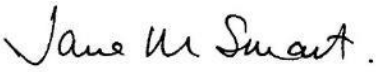
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Contents Page

1.0 Executive Summary 5

2.0 Introduction 7

2.1 Location and Background to the Proposal 7

3.0 Full details of proposed works on site 8

4.0 Survey and Site Assessment 8

4.1 Pre-existing information on the bat species at the survey site 8

4.2 Status of Species 8

4.3 Objectives of the survey 9

4.4 Site/Habitat Description 10

4.5 Legislation and Planning Policy 11

5.0 Field Survey Methodology 13

5.1 Bat Roost Assessment 13

5.2 Dusk Emergence and Pre-Dawn Re-entry Bat Surveys 15

5.3 Limitations 16

6.0 Results 18

6.1 Data Search 18

6.2 Bat Roost Assessment Results 18

6.3 Bat Emergence and Dawn Re-entry Survey Results 22

7.0 Interpretation of Survey Results and Recommendations 24

8.0 References 25

Table Contents

Table 1. Broad categories of bat species according to roost preference (Hundt, 2012) 13

Table 2: Dates and weather conditions for emergence and pre-dawn re-entry surveys. 15

Table 3. Roost Suitability Assessment by Building. 20

Appendix Contents

Appendix A – Photographs 26

Appendix B – Architects Drawings 32

1.0 Executive Summary

Site location	219 Sunderland Road, South Shields, Tyne and Wear, NE34 6AQ is a three-storey, semi-detached dwelling house. The building lies in an urban location at OS Grid Ref NZ 37702 64809
Proposed development	The building is undergoing extensive refurbishment including within the existing attic rooms and loft void. The works that have the potential to impact bats are: • The renovation and refurbishment of the existing attic rooms shown as Bedroom 3, Bedroom 4, and the head of stairs landing in "Proposed Loft Layout" in the architects Drawings in Appendix B. (NB Bedroom 5, is at a lower level within the main part of the house) • Installation of dormer windows and velux windows. Planning permission is required to allow the installation of the dormer windows and a bat survey and report have been requested to support that planning application.
Previous Surveys	We are not aware of any previous surveys having been carried out at the site. Durham Bat Group have been consulted for existing records of bats within 2km of the site but have not yet responded.
GSL Survey	Graeme Smart Ltd, Consultant Ecologists (GSL) was commissioned to inspect the building and to carry out one evening emergence survey and one dawn re-entry survey for bats. An internal and external bat roost assessment of the building was completed on the 4th August 2017. One dusk emergence survey of the building was completed on 10th August 2017 by three surveyors using broadband bat detectors and recording calls for subsequent computer analysis. One pre-dawn re-entry survey of the building was completed on 25th August 2017 by three surveyors using broadband bat detectors and recording calls for subsequent computer analysis.
Results, Interpretation and Recommendations.	***During the Internal/External Inspection:*** No field signs indicating bat presence were found within or on the exterior of the building. ***During the emergence survey on 10th August 2017:*** <u>No bats emerged from the building.</u>

	During the pre-dawn re-survey on 25th August 2017: <u>No bats entered the building.</u> Common pipistrelle bats were detected in the vicinity of the building during both surveys. During the dawn survey, common pipistrelle bats were observed to pass the site, heading south, 32 minutes before sunrise. Considering the results of both the building inspection and the emergence and dawn re-entry surveys carried out, it is concluded that the building does not support roosting bats. As the building does not support roosting bats, the proposal detailed in the Architects Drawings in Appendix B will currently have no impact on bats and therefore, no measures to mitigate any negative impact are required. However, as: • bats are a mobile species and may change roost sites or adopt new roost sites at short notice, and; • common pipistrelle bats forage near to and commute past the building there is a low risk that individual or small numbers of common pipistrelle bats may enter the building to roost before or during the refurbishment works. It is therefore recommended that contractors are made aware that there is a low risk that bats may be encountered during the works. If bats, or signs of bats (e.g. droppings), were to be found during the works then work should stop and a suitably experienced and licensed bat ecologist be contacted for advice. Works should not re-start until the ecologist has confirmed that it is appropriate to do so. The details and recommendations within this report will remain valid for a period of 12 months. Beyond this period, if works have not yet been undertaken, it is recommended that the site is re-surveyed by an appropriately experienced and licensed bat ecologist. A re-inspection of the property may be sufficient.

2.0 Introduction

2.1 Location and Background to the Proposal

219 Sunderland Road, South Shields, Tyne and Wear, NE34 6AQ is a three-storey, semi-detached dwelling house.
The building lies in an urban location at OS Grid Ref NZ 37702 64809

Figs 1 and 2 shows the general location of the site.



Fig 1. Site location



Fig 2. Site location

The building is undergoing refurbishment as shown in the Architect's drawings in Appendix B

3.0 Full details of proposed works on site

The building is undergoing extensive refurbishment including within the existing attic rooms and loft void.

The works that have the potential to impact bats are:

- The renovation and refurbishment of the existing attic rooms shown as Bedroom 3, Bedroom 4, and the head of stairs landing in "Proposed Loft Layout" in the architects Drawings in Appendix B. (NB Bedroom 5, is at a lower level within the main part of the house)
- Installation of dormer windows and velux windows.

Planning permission is required to allow the installation of the dormer windows and bat survey and report have been requested to support that planning application.

Further details of the proposed development are contained within the architects' drawings included in Appendix B.

Photographs of the existing buildings are included in Appendix A.

4.0 Survey and Site Assessment

4.1 Pre-existing information on the bat species at the survey site

4.1.1 Previous Surveys

We are not aware of any previous surveys having been carried out at the site.

4.1.2 Data Search

Durham Bat Group have been consulted for existing records of bats within 2km of the site.

4.2 Status of Species

Durham Bat Group (who hold records for South Shields) report that eleven species of bats are found in County Durham, of which eight are known to breed.

Common pipistrelles are reported to be widespread, often found in modern housing estates. Soprano pipistrelles are known to occur on the Tees, Wear and Derwent, so are probably also widespread.

Nathusius pipistrelle have been observed at Cotherstone and near Bowes, and over the lake at Whitworth Hall but no maternity colonies have yet been found in the county.

Noctules are reasonably widespread and associated with mature woodland.

DBG has three reports of Leisler's bats and two unverified reports of Serotine bats, all from Teesdale in late summer. This corresponds with dispersal from breeding roosts.

Brown Long-eared Bats are reasonably widespread but localised. They require large undisturbed roof spaces within flying distance of suitable woodland feeding.

Whiskered Bats are also reasonably widespread but localised. This is an important species in Durham as few roosts are known in Southern England.

Brandt's bat is reported to be much rarer in Durham area than whiskered bat.

Natterer's bat is one of the areas rarer species.

Daubenton's bat is very widespread along the middle reaches of all rivers in the DBG area.

The Durham Biodiversity Action Plan includes an action plan for bats and lists the following as priority Species:

Table 1. Durham Biodiversity Action Plan Priority Bat Species

Durham Biodiversity Action Plan Priority Bat Species	
• Common pipistrelle 45kHz • Soprano pipistrelle 55 kHz • Nathusius' pipistrelle • Noctule bat • Daubenton's bat	• Whiskered bat • Brandt's bat • Natterer's bat • Brown long-eared bat

The Plans Objectives are:

- Maintain and enhance the range and population size of all bat species within the Durham BAP area
- Protect, maintain and enhance habitat features required by bats
- Create habitat networks which reconnect appropriate habitats and provide linear features such as hedgerows as navigational corridors between foraging and roosting habitats.
- Increase awareness and implementation of the legislation that protects bats in the UK.
- Encourage greater understanding amongst professionals such as planners, developers, builders, building regulators and engineers, of bat ecology and conservation
- Increase public awareness and participation in bat conservation.
- Increase research, survey and monitoring work into current bat populations and trends.

4.3 Objectives of the survey

The aims of the survey work undertaken by GSL and the subsequent report presented are to:

- Outline the legislative protection conferred on bats;
- Identify features within the buildings on site that have the potential to be utilised by bats;
- Document the results of internal/external inspections of buildings;
- Document the results of the bat emergence and pre-dawn re-entry surveys carried out;
- Assess the potential implications for the proposed works if bat roosts are present;
- Assess the likely impact of the proposed works on bats (if any present)
- To propose appropriate measures to avoid, mitigate, or compensate for likely negative impacts on bats
- To highlight the need for any further surveys, impact assessment, mitigation or licensing that may be required.

4.4 Site/Habitat Description

The building is a brick built 3-storey semi-detached house with slate roof. The two semi-detached houses were formerly one detached house which was separated at some time in the past.

The roof is of slate with clay ridge tiles and there are a variety of roof pitches with some valley gutters. Chimney stacks are of brick.

There is a single storey conservatory extension on the rear (east) elevation.

Further details are provided in Section 6.2 below and Photos in Appendix A.

The site is in an urban location immediately surrounded by residential housing. Gardens are large and mature and there are some mature trees and shrubs in immediately adjacent gardens (See Fig 2 above).

There is a large school to the east with large open areas of amenity grassland, though this area is well-lit at night.

There is no significant areas of woodland or freshwater within 1km of the site (See Fig 3 below)

Overall, the habitat surrounding the site is of low quality for supporting bats which reduces the likelihood of bats being present and roosting in the buildings on site.

The species most likely to be present in this urban habitat are common pipistrelle and soprano pipistrelle.



Fig 3. Site Location and Surrounding Habitat

Full details of the building are given in Section 5.1 below.

4.5 Legislation and Planning Policy

All British bat species are given special protection within England by their inclusion on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended by the Conservation of Habitats and Species (Amendment) Regulations 2012) and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

As a result, it is an offence to:

- Deliberately capture, injure or kill a bat
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats
- Damage or destroy a bat roosting place (even if bats are not occupying a roost at the time)
- Possess or advertise, sell or exchange a bat (dead or alive) or any part of a bat
- Intentionally or recklessly obstruct access to a bat roost

With specific reference to the offence of disturbance, regulation 39(1) of the Conservation of Habitats and Species Regulations 2010 (as amended) states that a person commits an offence if he:

> *"deliberately disturbs wild animals of any such species [i.e. a European Protected Species] in such a way as to be likely significantly to affect:*
>
> > *(i) the ability of any significant group of animals of that species to survive, breed, or rear or nurture their young; or*
> >
> > *(ii) the local distribution or abundance of that species".*

Where development will result in damage to, or obstruct access to, any bat roost (whether occupied or not) or risks harming or significantly disturbing bats, a European Protected Species Licence (EPSL) is required from Natural England to allow the development to proceed.

The legal interpretation of "development" in the context of European protected species is not restricted to works requiring planning permission from local planning authorities but includes permitted development and can encompass works that do not require any formal permission. This includes the proposed re-roofing.

Bats are also afforded more general protection in England (and Wales) within the Natural Environment and Rural Communities Act (NERC), 2006. This imposes a duty on all public bodies, including local authorities and statutory bodies, in exercising their functions, "to have due regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity" [Section 40 (1)]. It notes that "conserving biodiversity includes restoring or enhancing a population or habitat" [Section 40 (3)]. Consequently, attention should be given to dealing with the modification or development of an area if aspects of it are deemed important to bats, such as roosts, flight corridors and foraging areas.

Section 40 of the NERC Act 2006 also places a duty on all public authorities (including local planning authorities) in England and Wales to have regard, in the exercise of their functions, to the purpose of conserving biodiversity. A key purpose of this duty is to embed consideration of biodiversity as an integral part of policy and decision making throughout the public sector, which should be seeking to make a significant contribution to the achievement of the commitments made by Government in its Biodiversity 2020 strategy.

The National Planning Policy Framework also clearly sets out that pursuing sustainable development includes moving from a net loss of biodiversity to achieving net gains for nature, and that a core principle for planning is that it should contribute to conserving and enhancing the natural environment (and reducing pollution).

The local planning authority considering the planning application may therefore seek to secure a net gain for nature at this site when determining the application.

The Hedgerow Regulations 1997 give legal protection to important hedgerows. The presence of a protected species such as bats is a relevant consideration when assessing whether a hedgerow classifies as "important" under this legislation and may influence a local planning authority's decision on whether to approve removal of a hedgerow.

5.0 Field Survey Methodology

5.1 Bat Roost Assessment

5.1.1 External and Internal Bat Roost Assessment

An internal and external bat roost assessment was completed of the building on the 4th August 2017 by a suitably experienced and licensed bat ecologist: Graeme Smart. The bat roost assessment was completed under suitable weather conditions with survey methodology based on current industry best practice guidance (Collins, J (ed) (2016) *Bat Surveys for Professional Ecologists. Good Practice Guidelines (3rd Edition*). Bat Conservation Trust)

This preliminary roost assessment was completed to assess the likelihood of bats using the buildings on site as a roost site.

The exterior of the buildings was inspected from ground level during daylight, and any features with potential for being exploited by roosting bats were noted. All areas were viewed using close-focussing binoculars from the ground level. Any potential access points were identified and inspected.

The loft voids within the building were inspected with the exception of one small void where there was no access hatch (see Section 6.2 below).

During the external and internal inspection, the following field signs indicative of past or current use by bats were searched for:

- bat droppings on the ground, floor, or stuck to walls
- suitable entry and exit points including cracks and gaps in mortar/external and internal wall coverings
- live bats, bat corpses or skeletons
- oily marks (from fur) or localised clean spots around possible access points and roost areas
- lack of cobwebs in potential access point entrances and roost areas
- feeding remains (such as moth wings).

All bat species resident in the UK have been recorded using buildings and built structures at some time during the year. Many bat species also use underground sites or trees as roosts. Different types of roost are used by bats throughout the year, and bat species may show preferences for certain locations. Table 1 below shows broad categories of bat species according to roosting preferences (adapted from Hundt, 2012).

Table 1. Broad categories of bat species according to roost preference (Hundt, 2012)

Broad categories of bat species according to roosting preference
• Crevice dwelling bat species (which tend to be hidden from view): *common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Brandt's bat, whiskered bat, Alcathoe bat, Bechstein's bat*.

- Roof-void dwelling bat species (that may or may not be visible on roof timbers): *noctule, serotine, Leisler's bat, Daubenton's bat* and *Barbastelle*.
- Bat species that need flight space in certain types of roost (that may or may not be visible on roof timbers): *Natterer's bat*, and *brown* and *grey long-eared bats*.
- Bat species that need flight space and flying access (and roost hanging freely in the open): *greater* and *lesser horseshoe* bats.

The type of roost used may vary throughout the year. Roost types can be:

- **Transitional (April-September/October).** On waking from hibernation or in the period prior to hibernation, bats search for roosts in which they stay for only a few days or on some occasions several weeks. These transitional roosts can be occupied by a few individuals or occasionally small groups. The transitional roosts used prior to hibernation are generally cool and thus may allow bats to reduce their energy requirements before going into hibernation.
- **Maternity Roost (May – August).** Breeding females gather together around the beginning of May to form nursery colonies. During this period gestation begins with births typically occurring between June and July. The females and their young remain within the maternity roost until the young are weaned and independent (late July-August). These roosts tend to break up between August and September. Adult males are rarely found within these colonies. However, the adult males of long-eared bats, Daubenton's, Natterer's, greater and lesser horseshoe bats can be found roosting within maternity colonies with their numbers increasing throughout the active season.
- **Satellite Roost (May-August).** Breeding females may have alternative roosts in close proximity to the main nursery colony. These are referred to as 'satellite roosts'. The numbers of bats using these roosts can vary greatly, from a few individuals, to small groups.
- **Mating roost (September – November).** All British bats are polygynous i.e. males mate with several females. Mating generally takes place from late summer and can continue through winter.
- **Hibernation Roost (October – March).** Depending on the weather and food availability, bats tend to move to hibernation sites from October.
- **Night Roost (March – November).** Bats may use roosts other than traditional day roosting sites to rest in during the night. These roosts vary in their conservation significance. Night roosts may be used by a single individual on occasion or they could be used regularly by the whole colony. Studies have shown that night roosts may be of particular importance to some species i.e. the lesser horseshoe, providing key resting places within core foraging areas.
- **Day Roost (March – November).** These roosts are used during the day to rest in. Males of most British species spend the summer roosting alone or in small groups with other males in such roosts. Bats may regularly use a number of day roosts, switching between them on a daily basis, though conversely, they may occupy the same roosting site for several weeks.
- **Feeding Roost (May – November)**. These roosts can be occupied by a single animal or a few individuals throughout the active season. They vary in their significance as they may

be used by the whole colony or just a few individuals to feed, to shelter from the weather or to rest temporarily.

- **Swarming sites.** Swarming takes place between August and November, whereby large numbers of bats from several species gather, generally around caves and mines. They are often dominated by the Myotis species and appear to be important mating sites with some bats travelling several kilometres to reach these areas. A proportion of the bats that travel to these sites will remain to hibernate.

5.2 Dusk Emergence and Pre-Dawn Re-entry Bat Surveys

Based on the assessment of the building having low roost suitability but bearing in mind that loft areas had been subject to disturbance and that Loft Area A was inaccessible (See Section 5.1 below), one dusk emergence survey and one pre-dawn re-entry survey was completed by Graeme Smart, assisted by 2 additional experienced field surveyors. Surveyors used BatloggerM and Anabat Express detectors to record bat activity and BatloggerM, Pettersson D240x, and Batbox Duet detectors to listen to and identify bat species present in the field.

Bat calls recorded were analysed using either AnalookW or Batexplorer sound analysis software.

Sample sonograms from calls recorded during survey are included in Section 5.2 below.

The dusk emergence survey commenced a minimum of 15 minutes before sunset, and continued for a minimum of 1.5 hours after sunset.

The pre-dawn re-entry survey commenced a minimum of 2 hours before sunrise and continued until at least sunrise.

Table 2 Summarises the date of the surveys and weather conditions. Figure 4 (below) shows the surveyor locations used during the surveys. 219 Sunderland Road is highlighted in blue and surveyor positions as yellow stars. S1 was at roof eaves level (on temporary scaffolding erected for the proposed works), allowing roof areas to be closely observed. Surveyors at S2 and S3 were able to observe all parts of the east and south elevations and Surveyor S2 was able to observe the porch-type roof over the bay window on the west elevation (which was below Surveyor S1).

Table 2: Dates and weather conditions for emergence and pre-dawn re-entry surveys.

Date of Survey	Start time	Sunrise/ Sunset	Finish time	Temp. Start (°C)	Temp. End (°C)	Precipitation	Cloud	Wind (Beaufort)
10/8/17 3 surveyors.	20:34	20:50	22:40	16	14	None	<5% throughout survey	B4 from NW at start of survey falling to B3 from NW at end of survey.

25/8/17 (dawn) 3 surveyors.	04:00	06:00	06:05	15	15	None	90% at start falling to 40% at end of survey	B2 from S increasing to B3 from S by end of survey



Fig 4. Surveyor Locations and Building extent.

5.3 Limitations

The refurbishment of the interior of loft rooms had started before survey was requested by the LPA to support an application for the construction of a dormer window. This would have been likely to destroy any field signs, should any have been present. However, it should also be noted that the areas denoted within this report as Loft B and Loft C were part of the occupied accommodation of the house (a games room and storeroom) and therefore very unlikely to be used as a roost site.

Loft Area A was not accessible for inspection as there is no access hatch.

The limitations above were addressed by treating the building as having "moderate" suitability (rather than "low" – See Section 6.2 below) and both a dusk emergence survey and a dawn re-entry survey were carried out.

There are no other significant limitations on the surveys undertaken or on the validity of the results.

Survey was carried out in the optimum period for bat surveys as specified in Collins, J, (ed) 2016 and in the period when bat maternity colonies are considered to have assembled (May to August)

Bat emergence surveys were completed with the assistance of bat detectors, a survey method that is a 'non-invasive' technique, and will therefore not have an adverse effect on the conservation status or welfare of bats. However, all survey techniques for bats are subject to bias, and bat detector surveys may under-record species with quiet echolocation calls, such as brown long-eared bats. Bats of the genera *Myotis* and *Plecotus* are also especially difficult to differentiate to species level based on echolocation call structure alone (Russ, 2012).

The details and recommendations within this report will remain valid for a period of 12 months. Beyond this period, if works have not yet been undertaken, it is recommended that a new assessment of the site is completed.

6.0 Results

6.1 Data Search

As of the date of this report, no response to the request for existing bat records within 2km of the site has been received from Durham Bat Group.

6.2 Bat Roost Assessment Results

The building is a 3-storey semi-detached dwelling house, originally built as a single detached dwelling in 1891 it was later split into 2 dwellings (See Fig 4 above).

The building is of brick with some decorative stone work and the mortar works is in good condition.

The roof is of slate and clay ridge tiles.

Chimney stacks are of brick.

Windows are timber sash windows and all frames are tight to the wall

The ground and first floor areas of the building were occupied as a dwelling until recently (when refurbishment started) and are considered to have a minimal risk of supporting roosting bats.

On the third-floor level, there are four attic rooms/loft spaces as follows (See Fig 5 below and Photos in Appendix A):

- Area A is a small inaccessible loft above a storeroom on the second floor. It is inaccessible, having no loft hatch, but is estimated to be approximately 5m x 3m x 1.2m high.
- Room B is an attic room formerly used as a games room (it was carpeted prior to refurbishment starting) accessed by a staircase from the second floor. It is 6m x 9m and 4m high. It is open to the ridge beam and has exposed large timber trusses and rafters. Walls and the roof were formerly lined with wooden panelling which has been stripped off as part of the refurbishment to expose fibreboard/fibreglass insulation under the slates. There is a roof light in the east roof slope and a doorway leading to Area C
- Room C is a storeroom approximately 5m x 3m x 2.4m high. It has a coomb ceiling which was fully plastered, though some areas have been removed as part of the refurbishment works, and it was formerly carpeted. There is a large light well in the north roof slope. Plaster has been removed from the west wall to expose the brick and a new doorway has recently been cut in this wall to allow access to Area D (previously there was only a small crawl door at low level).
- Area D was formerly a true loft. It is approximately 6m x 6m x 4m high. The roof is not under boarded and there is no underfelt, though are some areas of timber sarking at valley gutters. There is no floor present and there is fibreglass insulation on the ceiling of the room below. Steel joist are currently being installed to allow conversion to an attic room.

Prior to the start of refurbishment works, Rooms B and C would probably not have been accessible to bats. However, the area between under boarding/low level panelling and the roof slates in Room B and sealed voids to the west, south and east of the light well in Room C could have provided suitable roost sites.

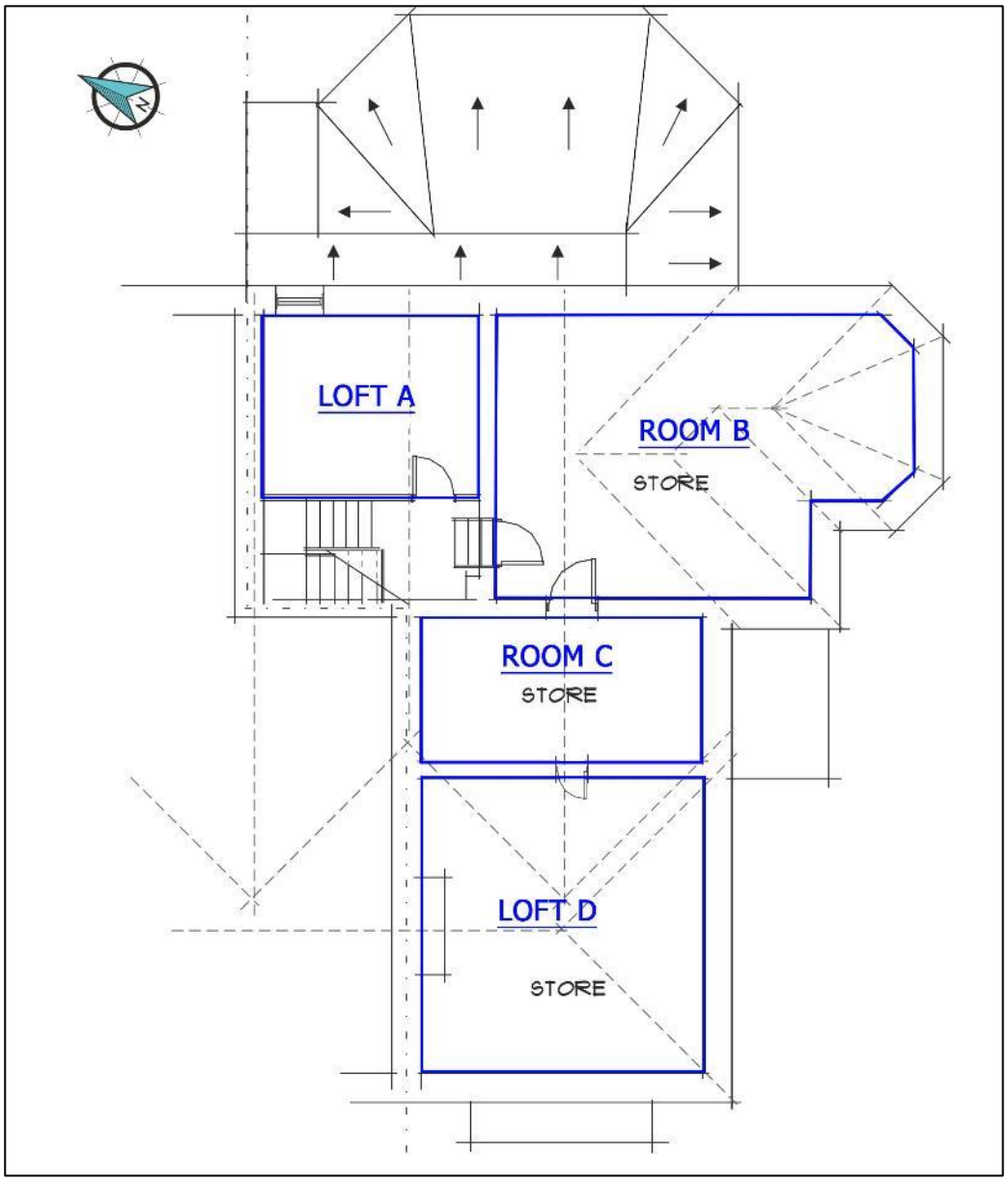


Fig 5 Attic Rooms and Lofts

During the external and internal assessment undertaken on 4th August 2017, the features detailed in Table 3 below were noted that provide potential for the building to support roosting or hibernating bats (Also see photos in Appendix A).

Based on the internal and external visual inspection the overall suitability of the building for supporting roosting bats was assessed to be "Low".

However, as the internal loft areas had already been subject to disturbance during refurbishment work (which would have removed any field signs if any present) and Loft Area A was not accessible for inspection; the building was treated as having "moderate" suitability and both a dusk emergence survey and a dawn re-entry survey were carried out.

Table 3. Roost Suitability Assessment of Building.

Elevation/ Building Feature	***Any indications or contraindications of current or recent use.***	***Additional Information***
East elevation	No indications of bat presence seen	Potential bat access points. • At valley gutters (see photo 6) • Occasional slipped and raised slates (see photo 6 and 9) • Over wall tops • Between soffit board beneath barge boards and wall (see photo 5) • Missing end cap at south end of soffit under barge board (see photo 4) Potential bat roosting locations: • On wall tops. • Within lofts • Within boxed soffits under bargeboards • Beneath slates • Under lead flashing around chimneys
South elevation	No indications of bat presence seen	Potential bat access points. • Occasional slipped and raised slates • Over wall tops • Slipped hanging tiles (see photo 7) Potential bat roosting locations: • On wall tops. • Within lofts • Beneath slates • Under hanging tiles (see photo 7) • Under lead flashing above entrance door (see photo 8)
West Elevation	No indications of bat presence seen	Potential bat access points. • Occasional slipped and raised slates • Over wall tops

Elevation/ Building Feature	***Any indications or contraindications of current or recent use.***	***Additional Information***
		• Under chimney lead flashing (see photo 9) • Displaced clay tile at south corner of overhanging porch-style roof over bay window (see photo 10) Potential bat roosting locations: • On wall tops. • Within lofts • Beneath slates • Under eaves of overhanging porch-style roof over bay window (see photo 3 and 10) • Between clay tiles and wooden sarking of overhanging porch-style roof over bay window (see photo 10)
North Elevation	N/A (Semi-detached property)	N/A (Semi-detached property)
Loft A	Not accessible for inspection	Unknown
Room B (See Photos 11 to 14)	None seen – though interior disturbed by refurbishment works	Potential bat access points. • Occasional slipped and raised slates • Over wall tops • Via raised lead flashing at chimneys Potential bat roosting locations: • On wall tops. • On and above roof timbers • Beneath slates (under insulation) • Gaps in wall near chimney breast at NW corner (see photo 13)
Room C (See Photos 15 to 17)	None seen – though interior disturbed by refurbishment works	Potential bat access points. • Occasional slipped and raised slates • Over wall tops Potential bat roosting locations: • On wall tops. • On and above roof timbers

Elevation/ Building Feature	***Any indications or contraindications of current or recent use.***	***Additional Information***
		• Beneath slates (between coomb ceiling and plaster work. • In (formerly) sealed voids to the west, south and east of the light well
Loft D (See Photos 18 to 20)	No field signs indicating bat use seen – though floor disturbed by refurbishment works. Ridge beam and timbers re cobwebbed (see Photo 20)	Potential bat access points. • Occasional slipped and raised slates • Over wall tops • Via raised lead flashing at chimneys Potential bat roosting locations: • On wall tops. • On and above roof timbers

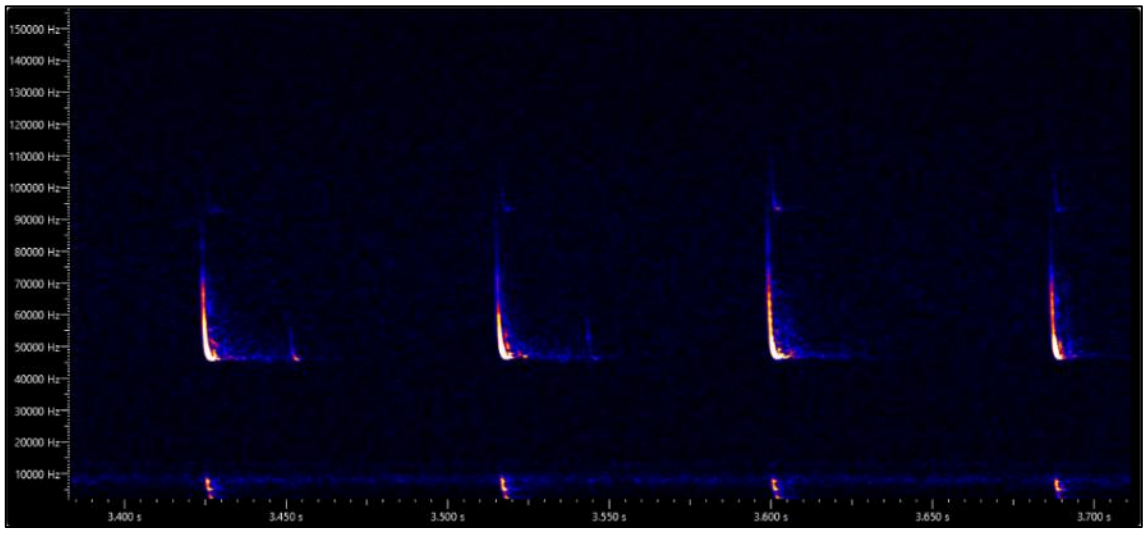
6.3 Bat Emergence and Dawn Re-entry Survey Results

During the emergence survey of 219 Sunderland Rd on 10th August 2017:

No bats were detected emerging from the building:

Common pipistrelle, was the only species of bat detected in the vicinity of the building and the level of activity was low with only 12 detections throughout the survey period of 116 minutes.

The first common pipistrelle bat was detected at 21:26hrs (36 minutes after sunset), arriving from the south.



Common pipistrelle recorded at 21:26hrs. Did not emerge. (Recorded on BatloggerM)

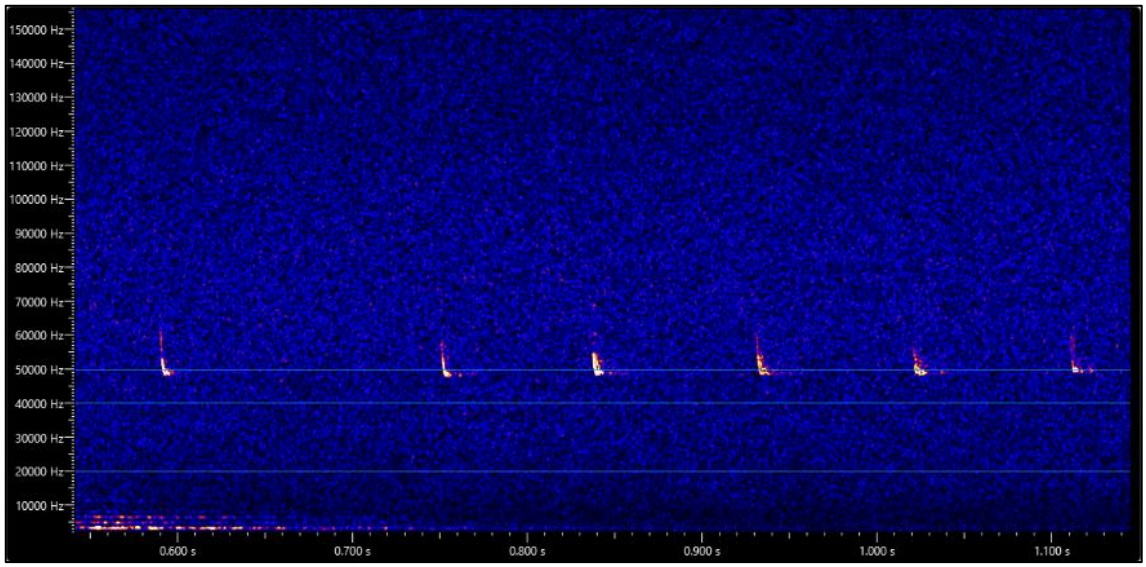
During the pre-dawn re-entry survey of 219 Sunderland Rd on 25th August 2017:

No bats were detected entering the building:

Common pipistrelle, was the only species of bat detected in the vicinity of the building.

The last common pipistrelle bat was detected at 05:28hrs (32 minutes before sunrise).

Three common pipistrelle bats leaving the site between 05:18 and 05:28hrs were observed to fly from north to south past the eastern side of the building, suggesting that the roost site being used lies somewhere to the south of the building.



Common pipistrelle recorded at 05:25hrs.
Did not enter the building. Flew south from the site. (Recorded on BatloggerM)

7.0 Interpretation of Survey Results and Recommendations

No bats were detected emerging from or entering the building during the two surveys undertaken in August 2017.

Considering the results of both the building inspection, and the emergence and dawn re-entry surveys carried out it is concluded that the building does not support roosting bats.

As the building does not support roosting bats, the proposal detailed in the Architects Drawings in Appendix B will currently have no impact on bats and therefore, no measures to mitigate any negative impact are required.

However, as:

- bats are a mobile species and may change roost sites or adopt new roost sites at short notice, and;
- common pipistrelle bats forage near to and commute past the building

there is a low risk that individual or small numbers of common pipistrelle bats may enter the building to roost before or during the refurbishment works.

It is therefore recommended that contractors are made aware that there is a low risk that bats may be encountered during the works. If bats, or signs of bats (e.g. droppings), were to be found during the works then work should stop and a suitably experienced and licensed bat ecologist be contacted for advice. Works should not re-start until the ecologist has confirmed that it is appropriate to do so.

The details and recommendations within this report will remain valid for a period of 12 months. Beyond this period, if works have not yet been undertaken, it is recommended that the site is re-surveyed by an appropriately experienced and licensed bat ecologist. A re-inspection of the property may be sufficient.

8.0 References

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Appendix A – Photographs

	**Photo 1.** East elevation
	**Photo 2.** South elevation
	**Photo 3.** West Elevation.
	**Photo 4.** Missing end cap at end of boxed bargeboard on east elevation.

	**Photo 5.** Example of gaps between wall and soffit board – east elevation.
	**Photo 6.** Example of raised/slipped slates and valley gutter.
	**Photo 7.** Hanging tiles on south elevation (See also Photo 2).
	**Photo 8.** Raised flashing above doorway – south elevation.

	**Photo 9.** Example of raised chimney flashing.
	**Photo 10.** Porch-style roof over bay window – west elevation.
	**Photo 11.** Attic Room B.
	**Photo 12.** Attic Room B (showing access door from stairs from lower floor).

	**Photo 13.** Attic Room B (gaps near chimney breast).
	**Photo 14.** Attic Room B (showing access door to Attic Room C).
	**Photo 15.** Attic room C.
	**Photo 16.** Attic Room C.

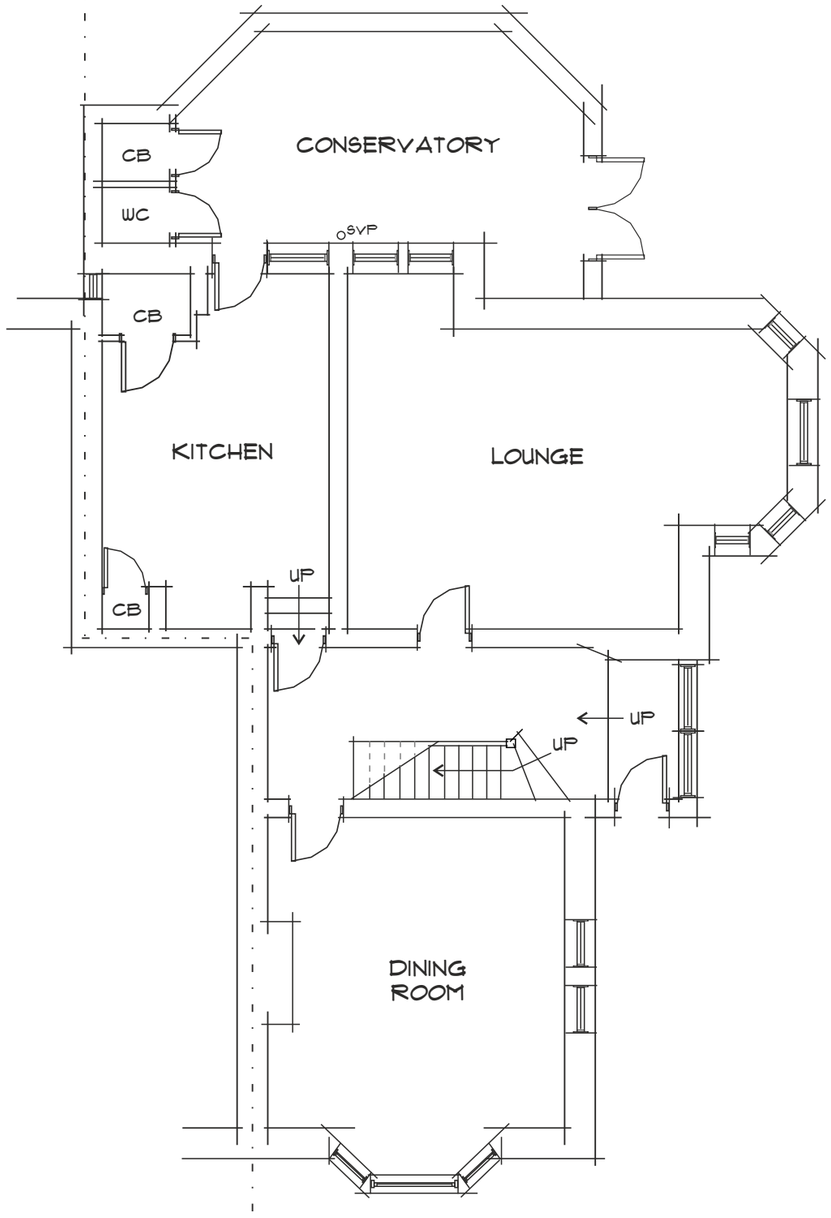
	**Photo 17.** Attic Room C (showing formerly sealed void beside light well).
	**Photo 18.** Loft D
	**Photo 19.** Loft D
	**Photo 20.** Cobwebbed Timbers in Loft D

Appendix B – Architects Drawings

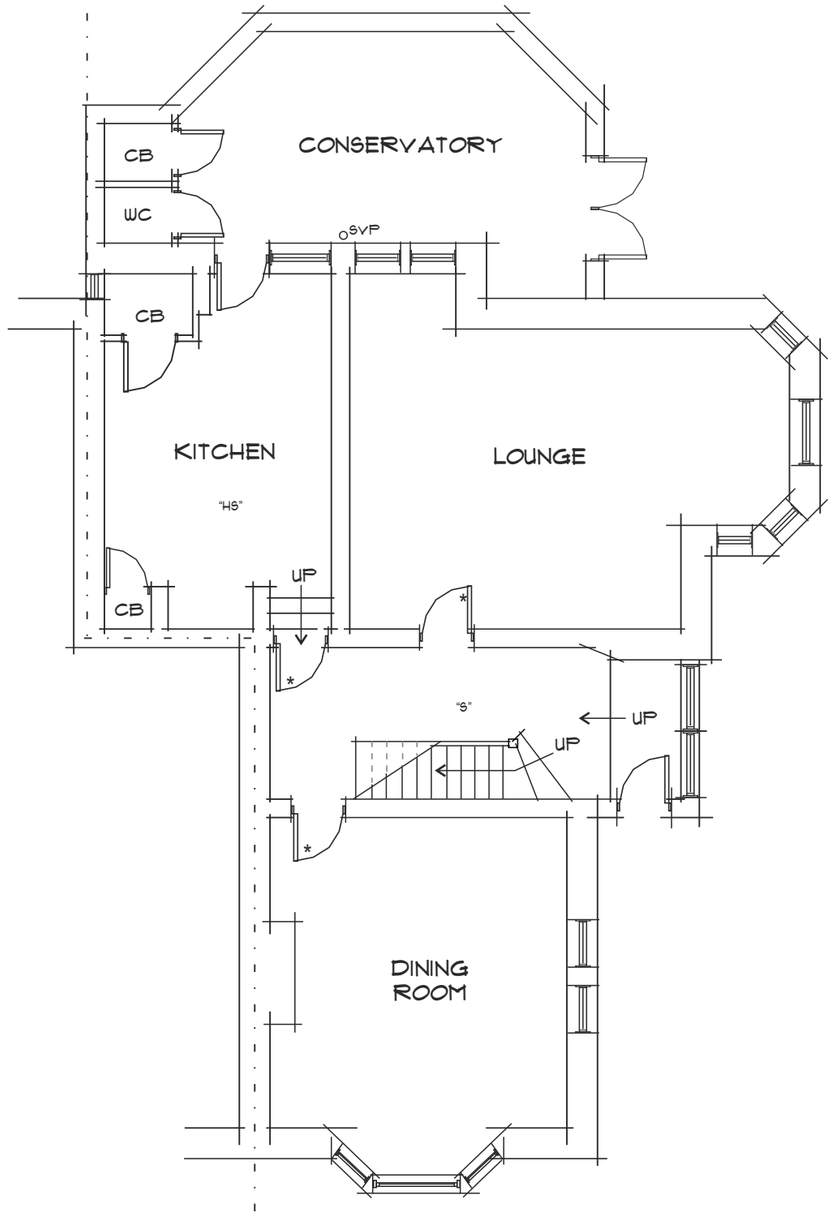
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NOTE: ALL DRAINAGE LAYOUTS ARE TO BE CONFIRMED ON SITE BY CONTRACTOR AS NECESSARY
ALL NEW DRAINAGE TO BE LINK INTO EXISTING SYSTEM.



EXISTING GROUND FLOOR



PROPOSED GROUND FLOOR

NORTH

LEGEND

"S" - INTERLINKED MAINS CONNECTED SMOKE DETECTOR WITH BATTERY BACK-UP.
"HS" - INTERLINKED MAINS CONNECTED HEAT SENSOR WITH BATTERY BACK-UP.
"SD" - INDICATES NEW INTERNAL SLIDING DOOR WITHIN WALL CAVITY.
* - INDICATES NEW FD30 FIRE DOOR.
"CB" - INDICATES STORAGE AREA OR CUPBOARD.
⊗ - MECHANICAL EXTRACTION TO BE MIN. 60 LT/SEC IN KITCHEN & MIN. 30 LT/SEC WITHIN UTILITY.
RADIATORS - ALL RADIATORS ARE TO FITTED WITH THERMOSTATIC CONTROL VALVES.

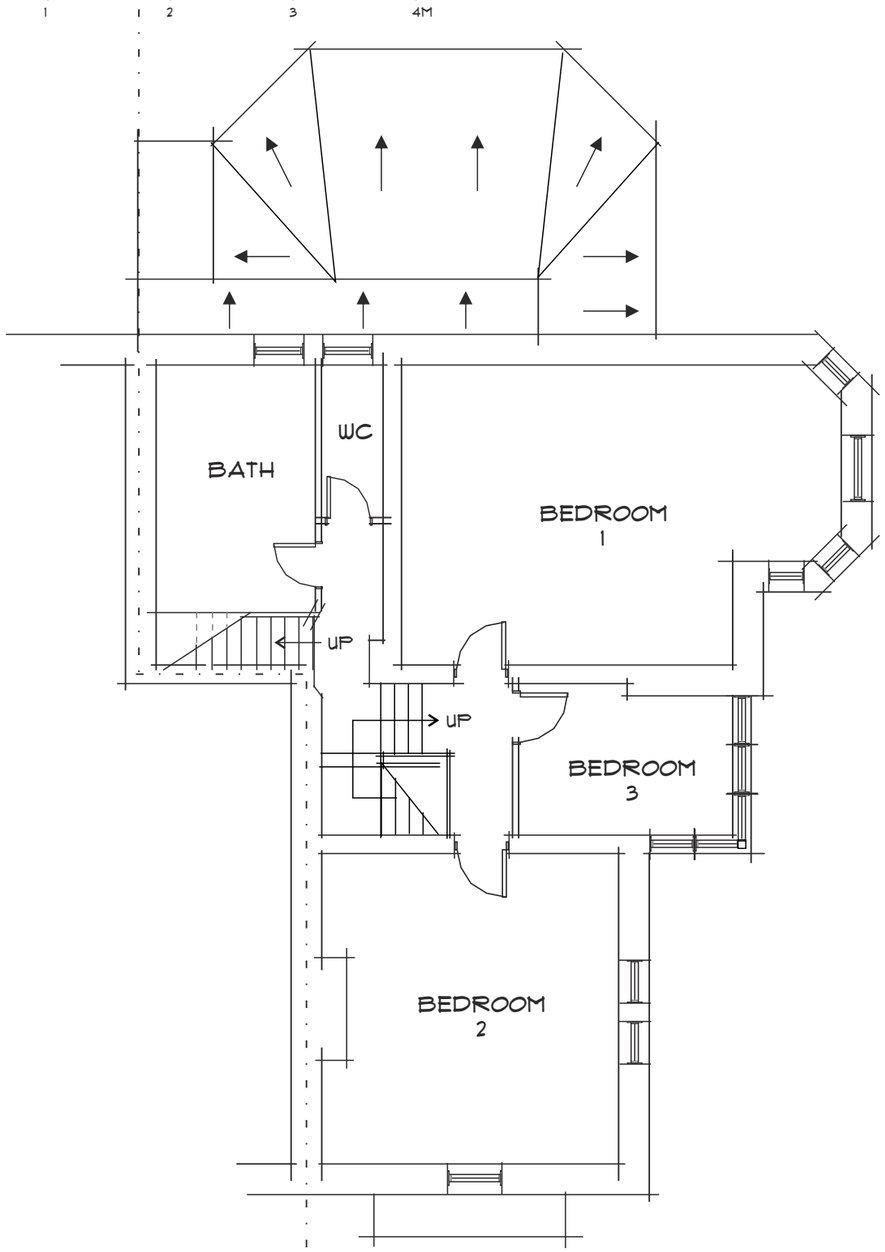
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CLIENT	MR & MRS CAPALDI
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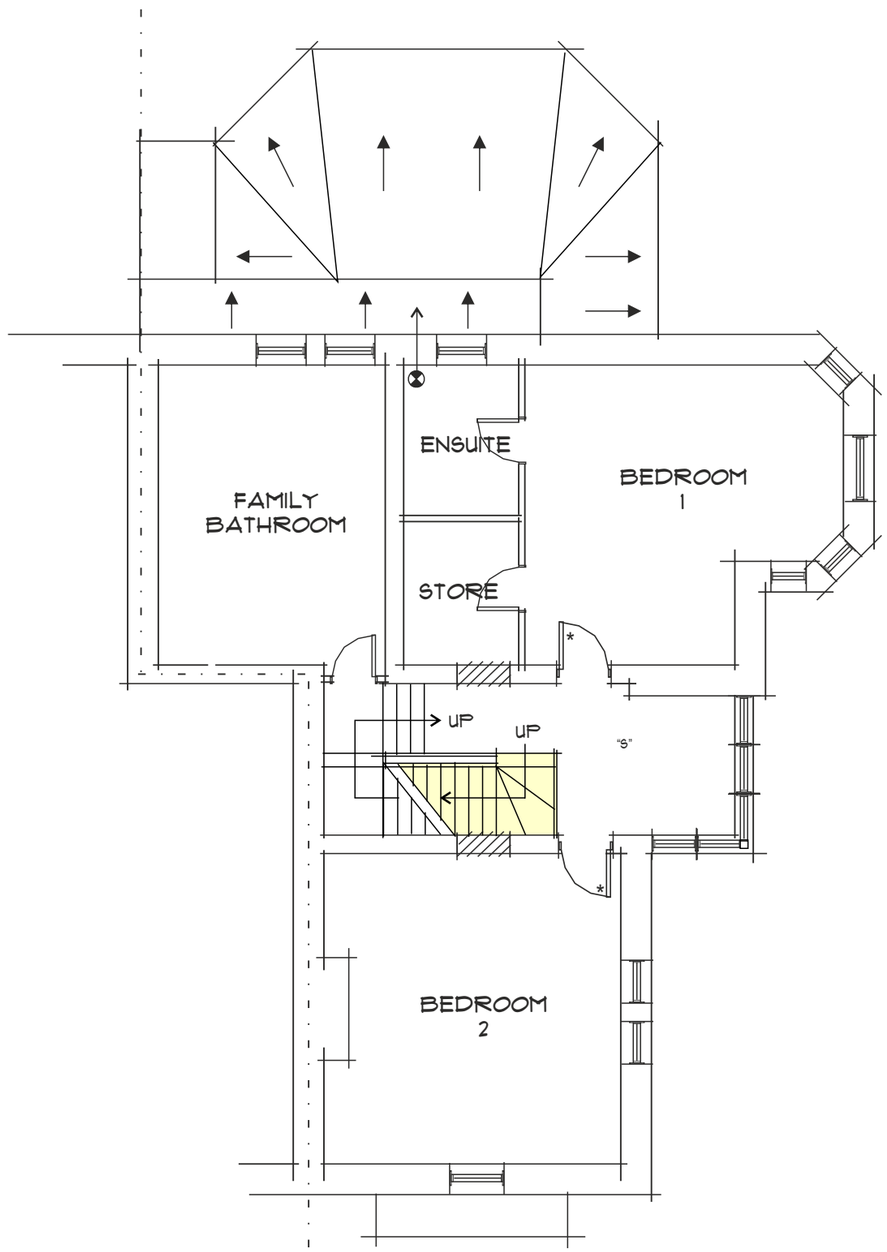
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ALL NEW DRAINAGE TO BE LINK INTO EXISTING SYSTEM.



EXISTING FIRST FLOOR



PROPOSED FIRST FLOOR

NORTH

LEGEND

"S" - INTERLINKED MAINS CONNECTED SMOKE DETECTOR WITH BATTERY BACK-UP.
"HS" - INTERLINKED MAINS CONNECTED HEAT SENSOR WITH BATTERY BACK-UP.
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RADIATORS - ALL RADIATORS ARE TO FITTED WITH THERMOSTATIC CONTROL VALVES.

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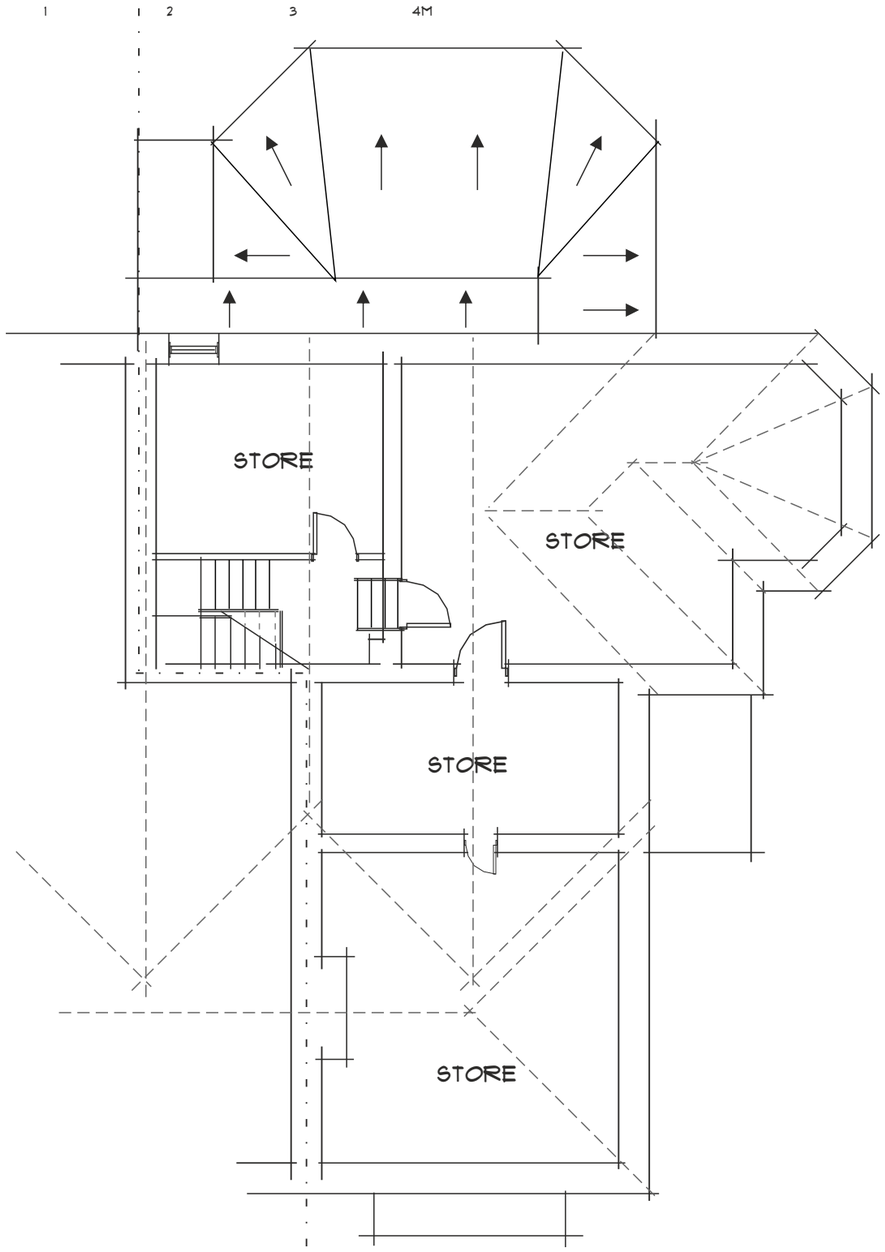
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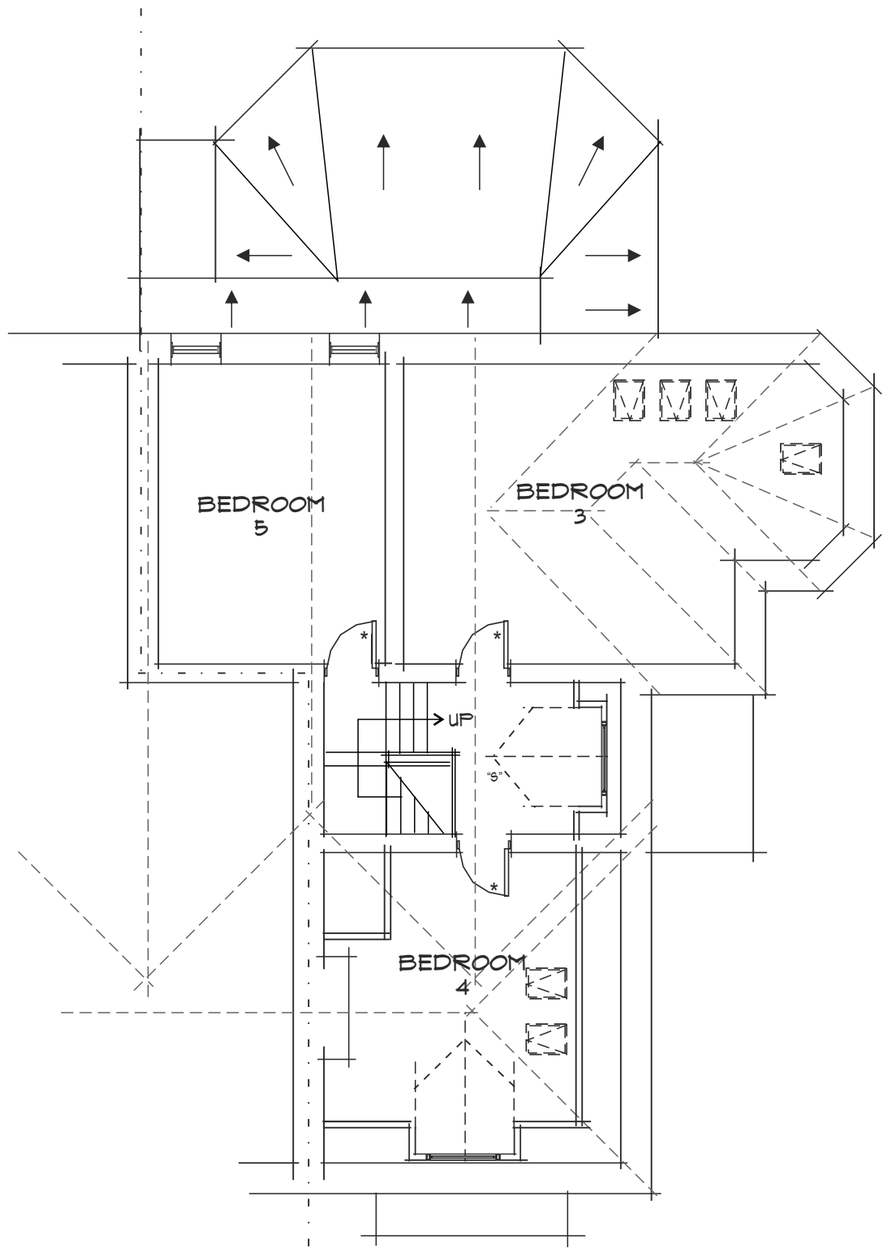
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NOTE: ALL DRAINAGE LAYOUTS ARE TO BE CONFIRMED ON SITE BY CONTRACTOR AS NECESSARY
ALL NEW DRAINAGE TO BE LINK INTO EXISTING SYSTEM.





EXISTING LOFT LAYOUT

PROPOSED LOFT LAYOUT

NORTH

LEGEND

"S" - INTERLINKED MAINS CONNECTED SMOKE DETECTOR WITH BATTERY BACK-UP.
"HS" - INTERLINKED MAINS CONNECTED HEAT SENSOR WITH BATTERY BACK-UP.
"SD" - INDICATES NEW INTERNAL SLIDING DOOR WITHIN WALL CAVITY.
* - INDICATES NEW FD30 FIRE DOOR.
"CB" - INDICATES STORAGE AREA OR CUPBOARD.
⊗ - MECHANICAL EXTRACTION TO BE MIN. 60 LT/SEC IN KITCHEN & MIN. 30 LT/SEC WITHIN UTILITY.
RADIATORS - ALL RADIATORS ARE TO FITTED WITH THERMOSTATIC CONTROL VALVES.

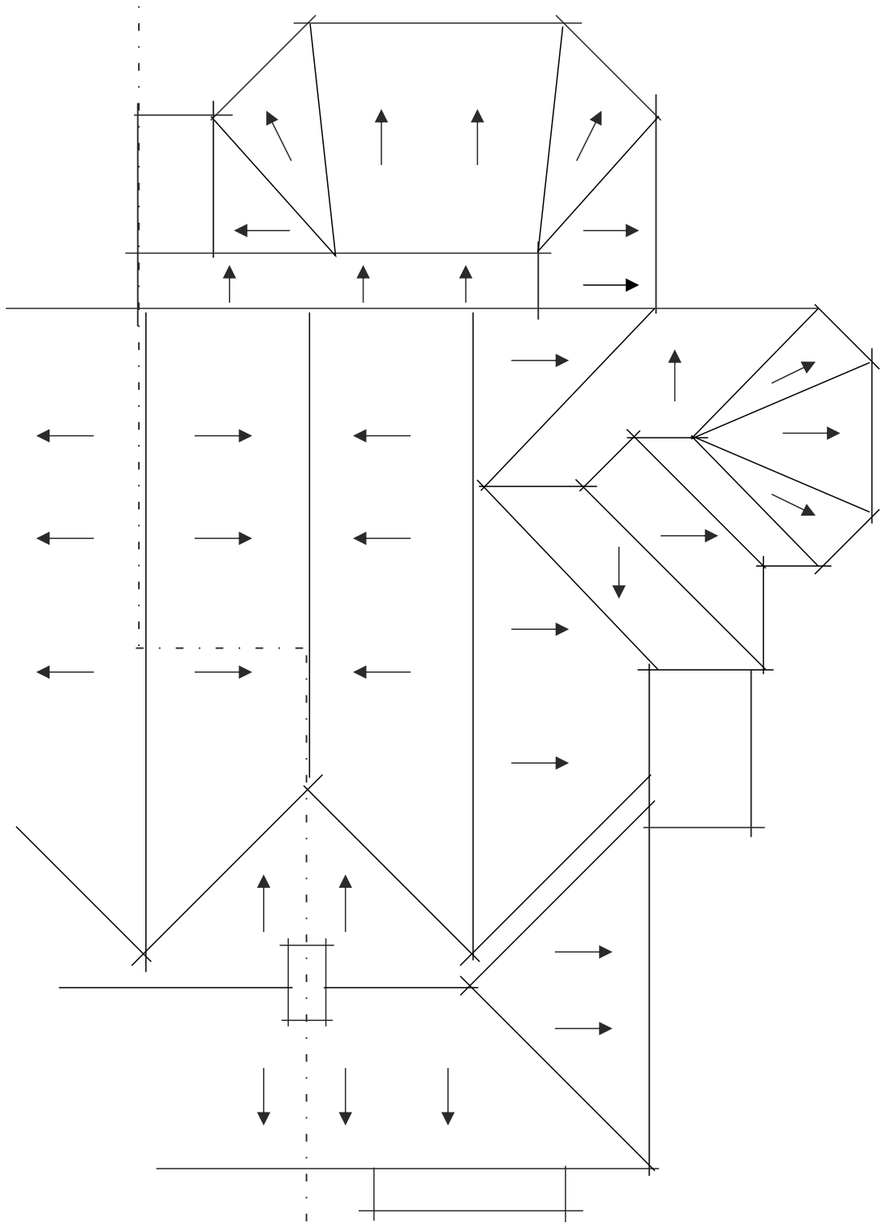
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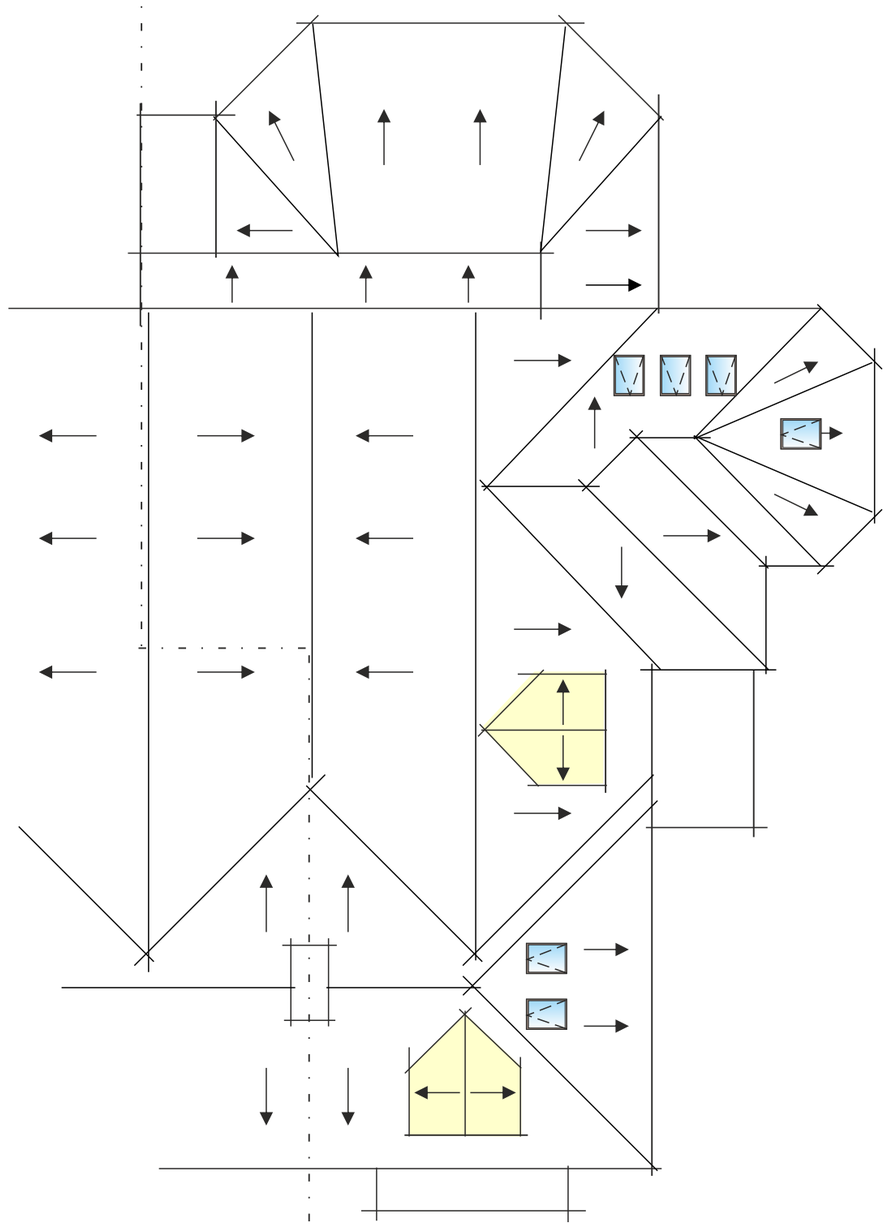
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EXISTING ROOF LAYOUT

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PROPOSED ROOF LAYOUT

NORTH

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EXISTING FRONT ELEVATION (WEST)



EXISTING SIDE ELEVATION (SOUTH)

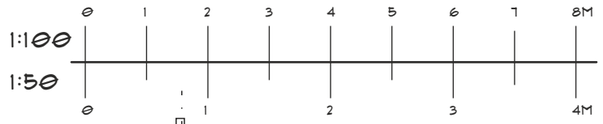


EXISTING REAR ELEVATION (EAST)

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PROPOSED FRONT ELEVATION (WEST)



PROPOSED SIDE ELEVATION (SOUTH)



PROPOSED REAR ELEVATION (EAST)

PROJECT EXTERNAL MATERIALS...

DORMERS TO LOFT AREA:
DORMER FRONTS & CHEEKS ~ NATURAL SLATE ROOF TILES TO MATCH EXISTING ROOF COVERING.
ROOF ~ NATURAL SLATE AS INDICATED.
WINDOWS ~ FRAMES ARE TO BE GREY UPVC FRAMES.

PLEASE NOTE ~ ALL PROPOSED MATERIALS ARE TO MATCH EXISTING.

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CLIENT	MR & MRS CAPALDI
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0 1 2 3 4M

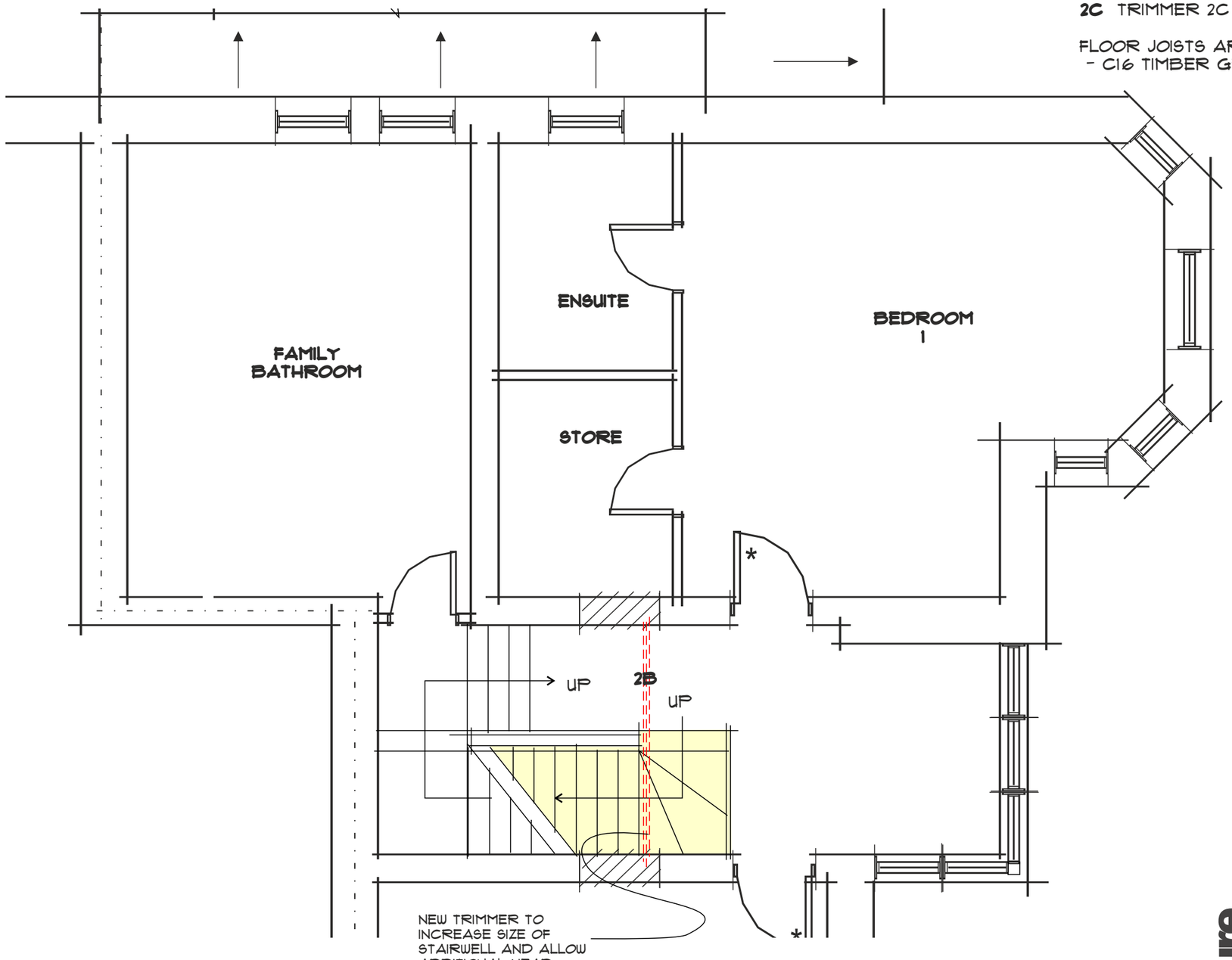
LEGEND

2A BEAM 2A ~ 254 X 146 X 43 KG/M UNI-BEAM

2B TRIMMER 2B ~ 3 NO. 225MM X 75MM C16 TIMBER GRADE

2C TRIMMER 2C ~ 2 NO. 225MM X 75MM C16 TIMBER GRADE

FLOOR JOISTS ARE TO BE 225MM X 75MM
- C16 TIMBER GRADE AT 400 C/C



PROPOSED FIRST FLOOR STRUCTURAL LAYOUT

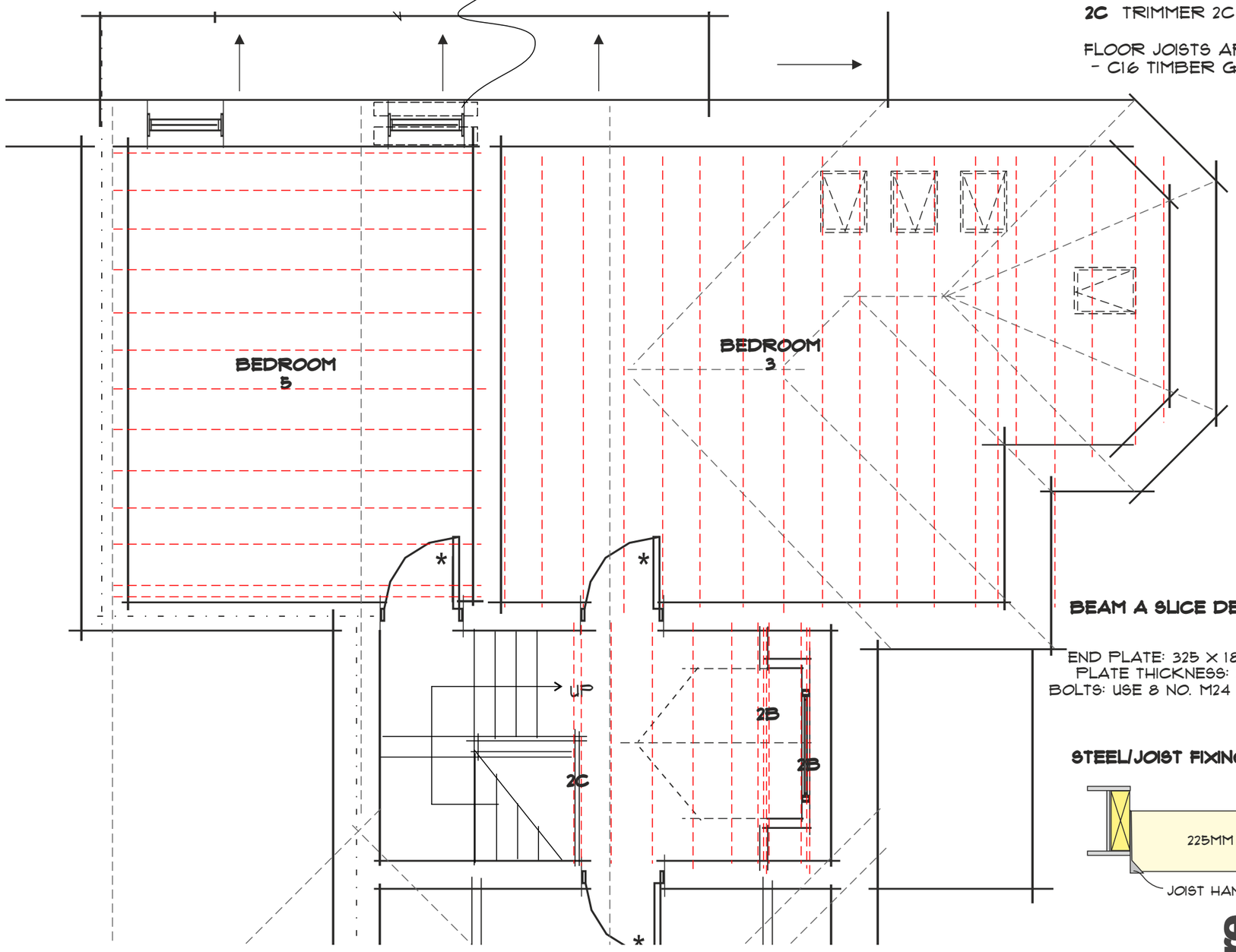
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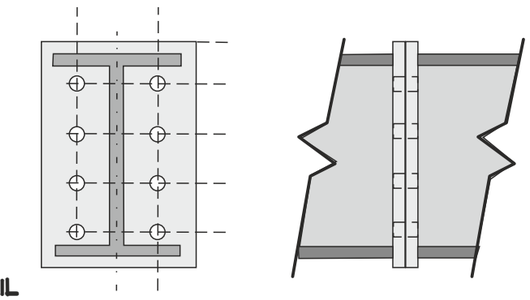
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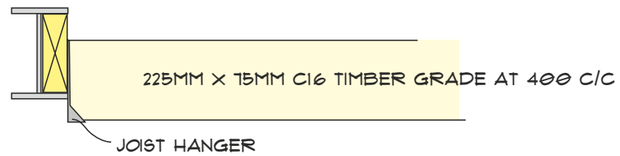
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BEAM A SLICE DETAIL

END PLATE: 325 X 180MM
PLATE THICKNESS: 25MM
BOLTS: USE 8 NO. M24 HSFG



STEEL/JOIST FIXING DETAIL



PROPOSED LOFT FLOOR STRUCTURAL LAYOUT

PLEASE NOTE: ALL DIMENSIONS SHOWN ARE APPROXIMATE. FINISHED PROJECT DIMENSION MAY DIFFER TO INDICATED DUE TO VARIATIONS IN THE CONSTRUCTION PROCESS.

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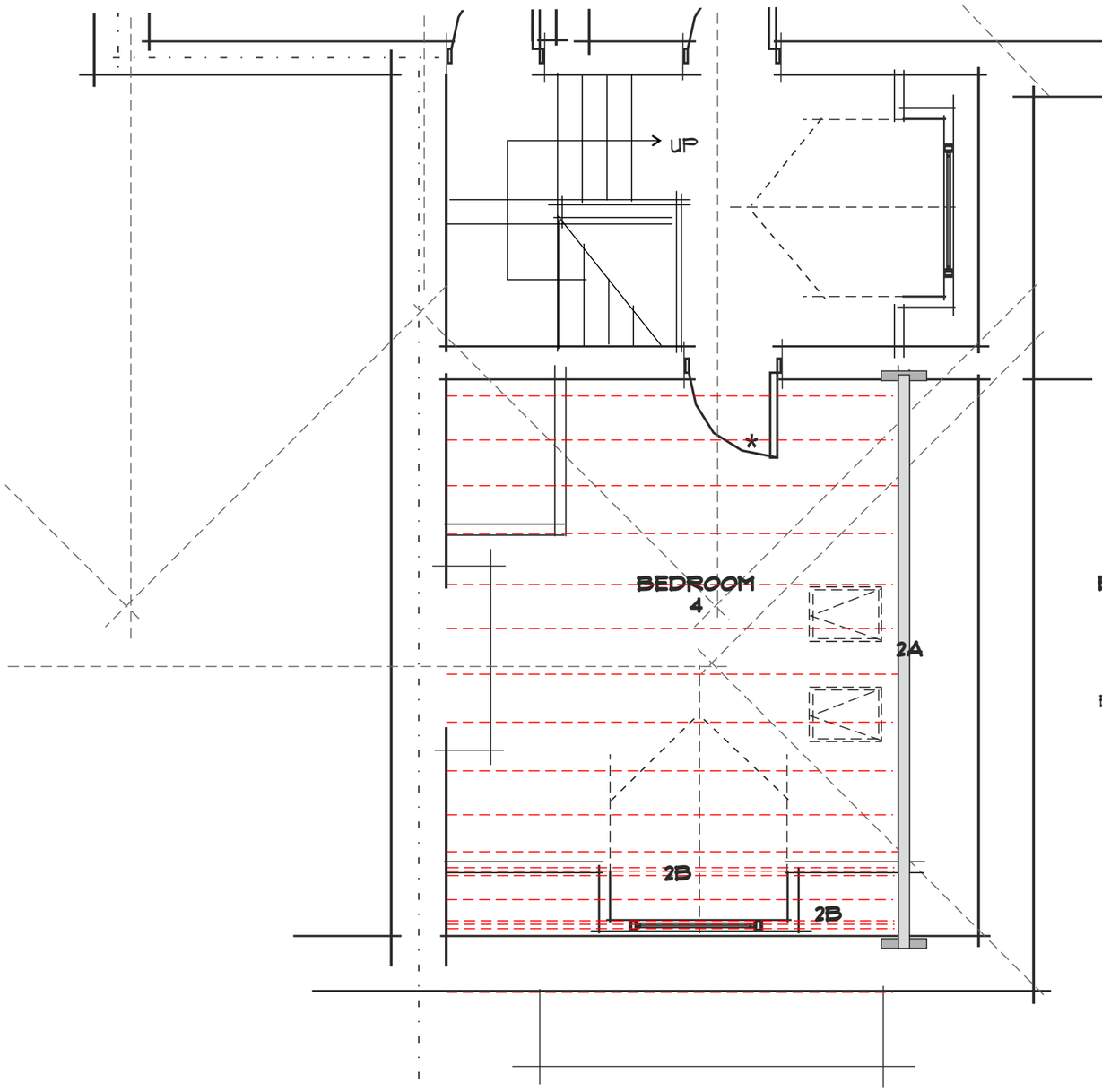
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SITE ADDRESS	219 SUNDERLAND ROAD SOUTH SHIELDS TYNE & WEAR NE34 6AQ

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LEGEND

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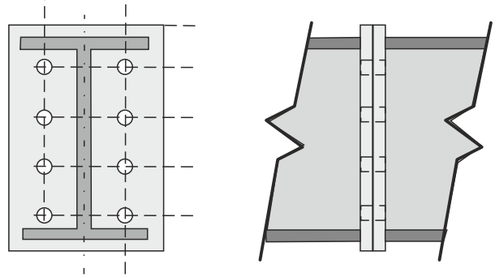
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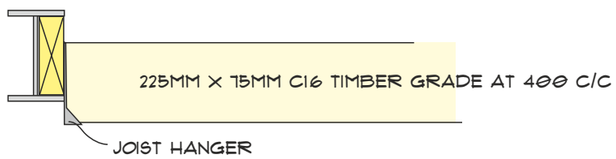
FLOOR JOISTS ARE TO BE 225MM X 75MM
- C16 TIMBER GRADE AT 400 C/C

BEAM A SLICE DETAIL

END PLATE: 325 X 180MM
PLATE THICKNESS: 25MM
BOLTS: USE 8 NO. M24 HSFG



STEEL/JOIST FIXING DETAIL



PROPOSED LOFT FLOOR STRUCTURAL LAYOUT

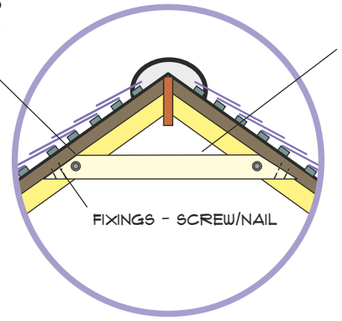
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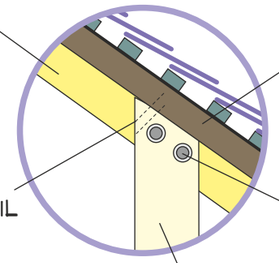
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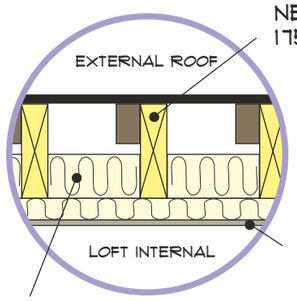


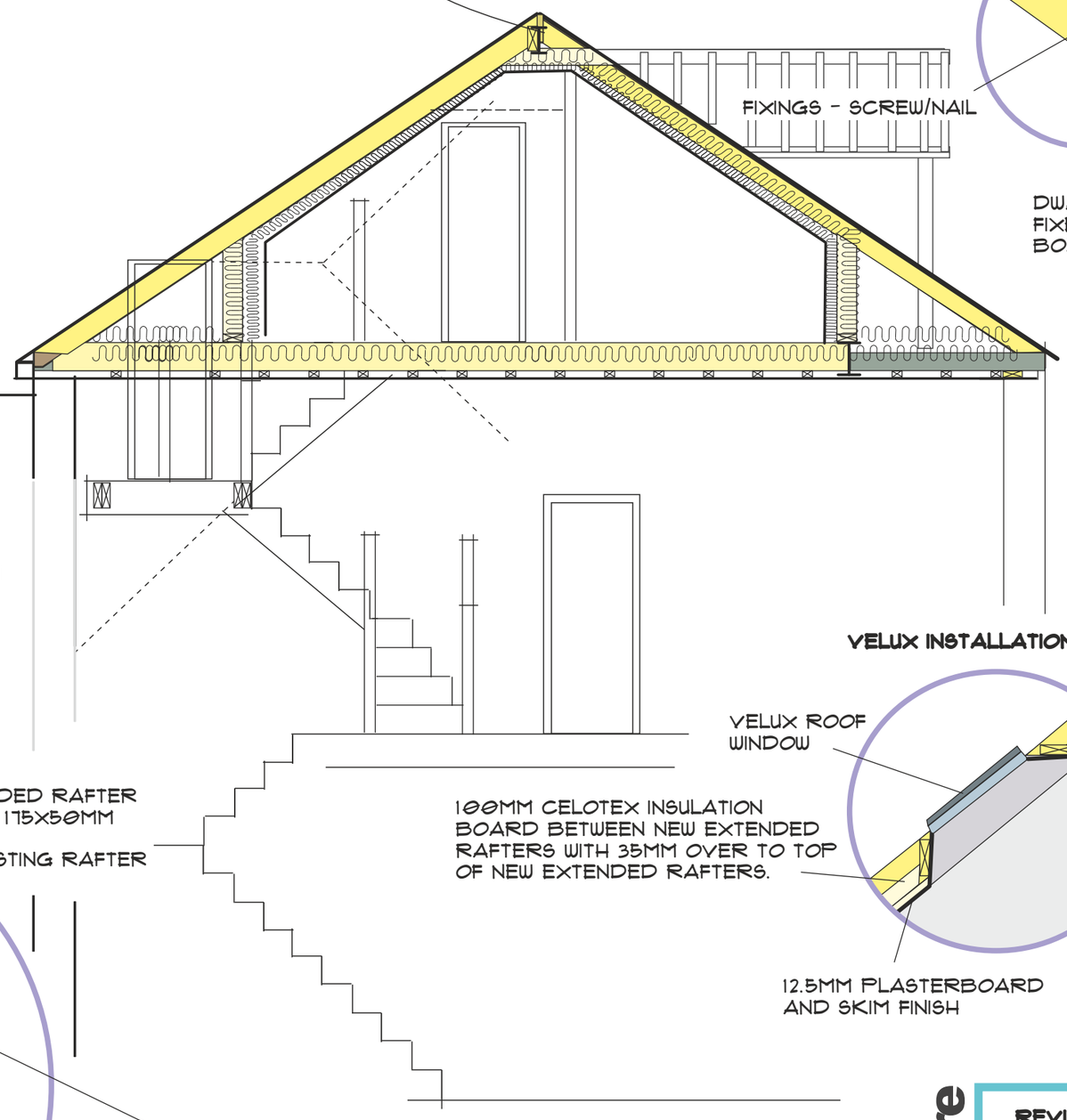
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DWARF WALL FIXING DETAIL

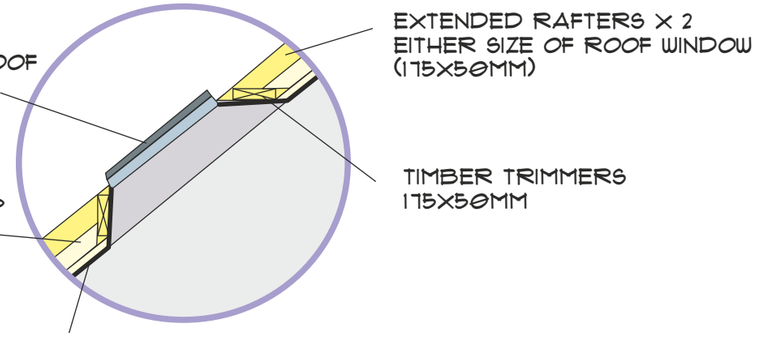


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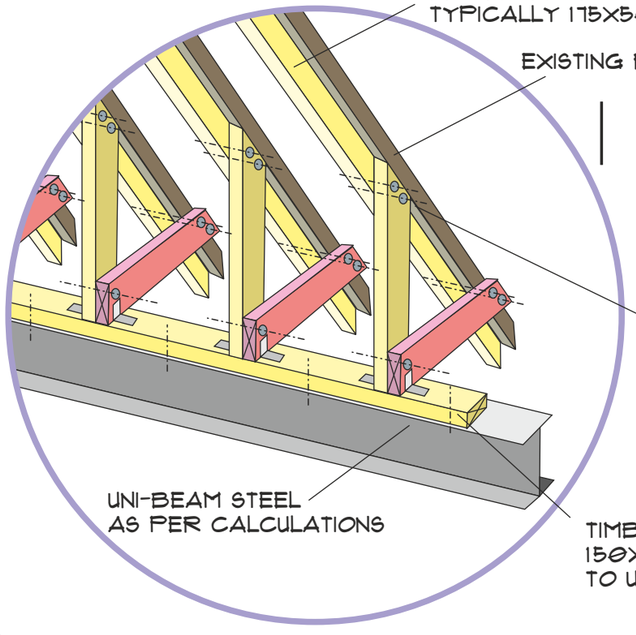




VELUX INSTALLATION DETAIL



EAVE FIXING DETAIL



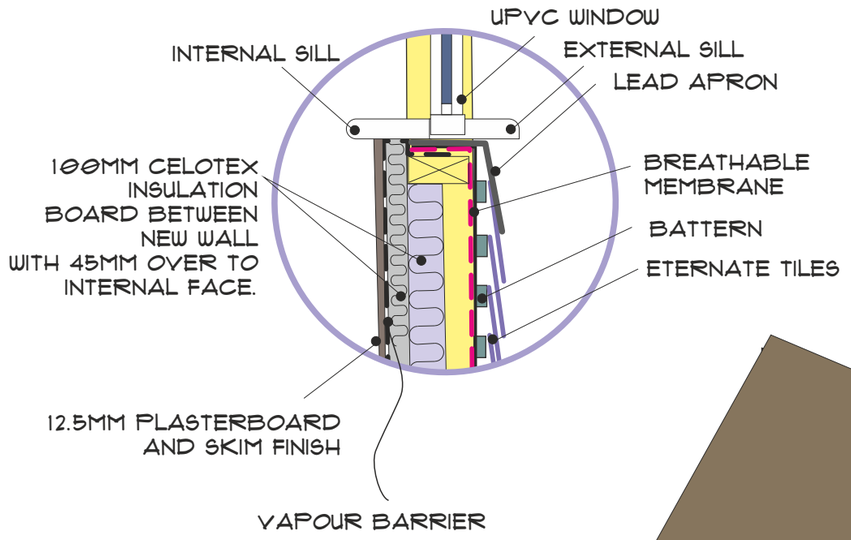
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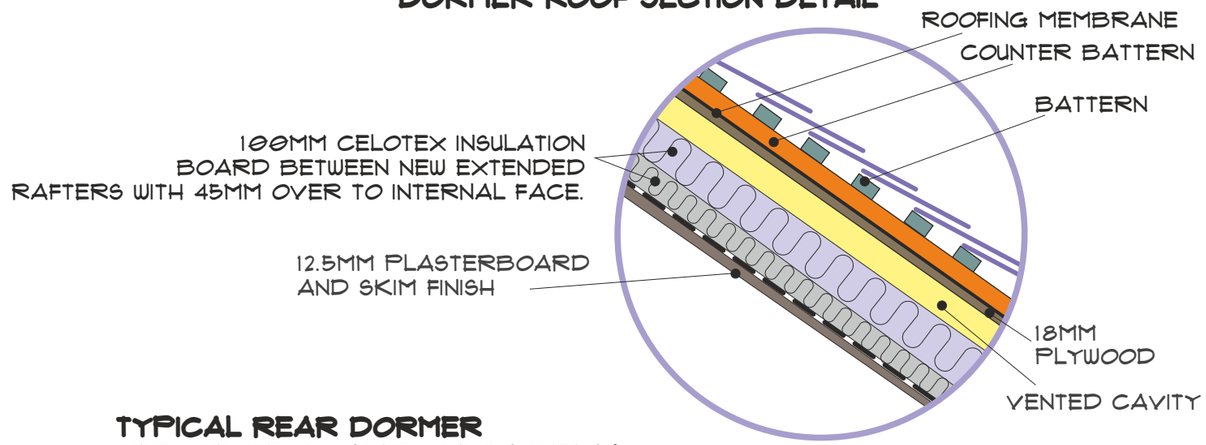
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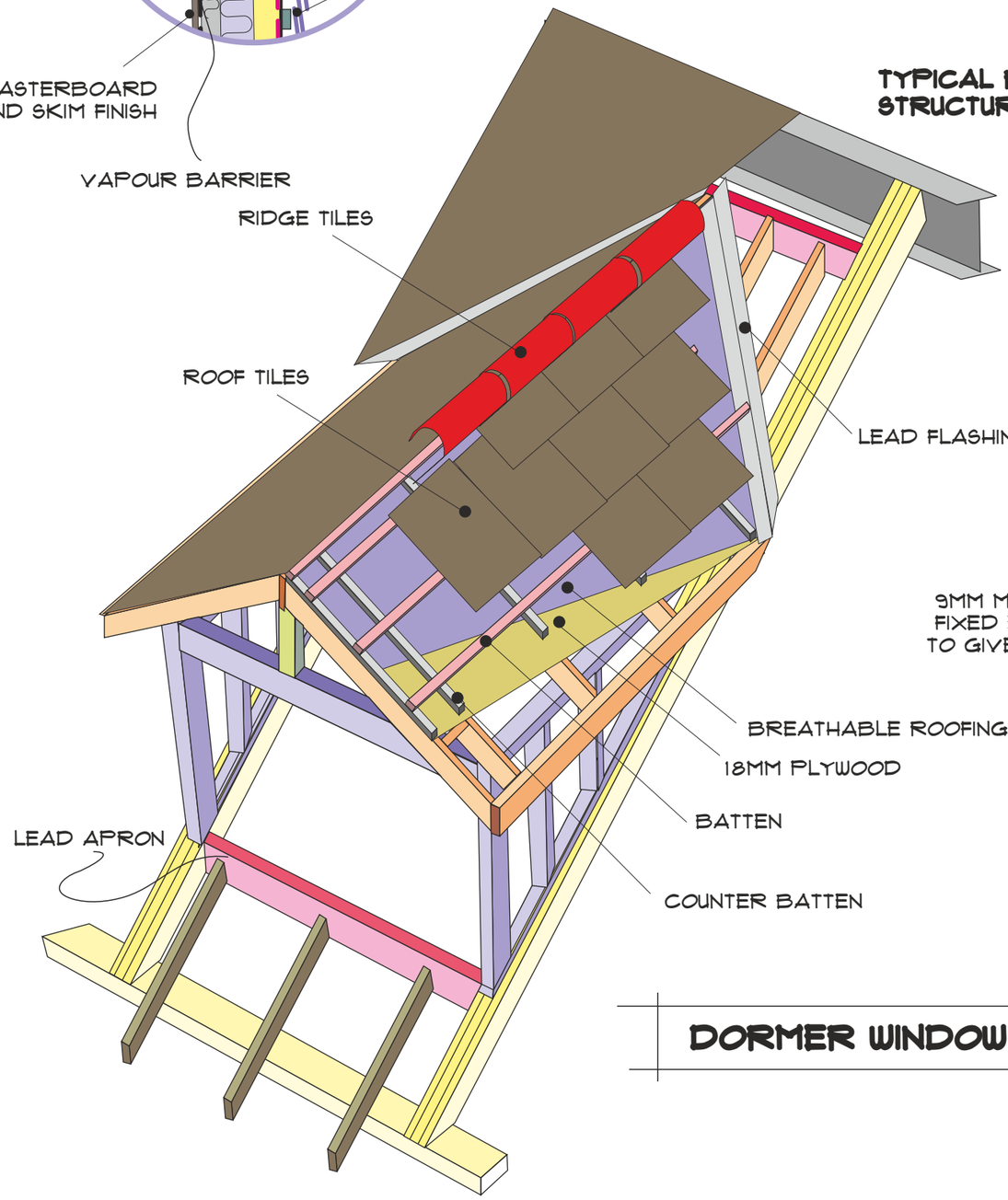
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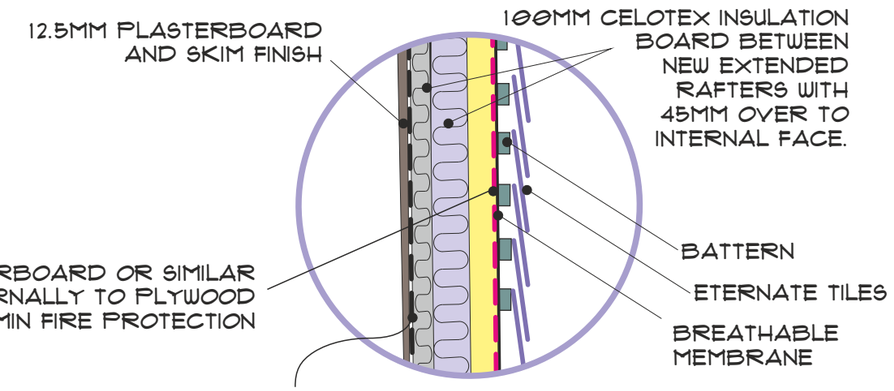
DORMER ROOF SECTION DETAIL



TYPICAL REAR DORMER STRUCTURE CONSTRUCTION DETAIL



DORMER CHEEKS SECTION DETAIL



DORMER WINDOW DETAIL

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LOFT CONVERSION DETAIL

PROJECT NOTES:

GENERAL: ALL WORK AND MATERIALS TO COMPLY WITH BUILDING REGULATIONS, BRITISH STANDARDS ETC. OR EQUIVALENT EUROPEAN STANDARDS. DIMENSIONS TO BE VERIFIED ON SITE AND ANY DISCREPANCY RESOLVED BEFORE WORK PROCEEDS. WHERE DIMENSIONS ARE NOT GIVEN HEIGHTS, ETC RELATE TO EXISTING BUILDING ELEMENTS. CONTRACTOR IS RESPONSIBLE FOR ALL SAFETY PRECAUTIONS - PROPPING EXISTING STRUCTURE, SAFE DELIVERY/HANDLING OF MATERIALS, ISSUE OF PERSONAL PROTECTIVE EQUIPMENT, LOCATION/PROTECTION OF EXISTING SERVICES, ERECTION OF SAFE SCAFFOLDING, FOLLOWING SAFE PRACTICES FOR WORK AT HEIGHTS, ETC TO COMPLY WITH ALL CURRENT SAFETY LEGISLATION AND HSE GUIDELINES. CONTRACTOR SHOULD HOLD APPROPRIATE INSURANCE'S (PUBLIC LIABILITY). OWNER TO INFORM BUILDING INSURERS OF PROPOSED WORK.

CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WEATHERPROOFING AND MAINTAINING SECURITY DURING CONSTRUCTION.

ALL WORK TO BOUNDARY WITH ADJOINING OWNERS WRITTEN CONSENT UNDER THE PARTY WALLS (ETC) ACT 1996 WHERE APPLICABLE. SHOULD CONSENT NOT BE OBTAINED OR BE REFUSED THE TERMS OF THE ACT SHOULD APPLY.

SALVAGE ROOF TILING AND ANY REUSABLE TIMBER, TRUSSED RAFTERS ETC. ARE TO BE REMOVED IN THE APPROPRIATE FASHION. SITE TO BE LEFT IN A CLEAN, TIDY AND COMPLETE STATE WITH ANY DAMAGE TO EXISTING PROPERTY MADE GOOD.

ALL CONSTRUCTION TO BE CARRIED OUT IN ACCORDANCE WITH 'ROBUST CONSTRUCTION DETAILS FOR DWELLINGS & SIMILAR BUILDINGS

FLOOR CONSTRUCTION:
22MM FLOORING GRADE CHIPBOARD (TYPE II/III MOISTURE RESISTANT) ON JOISTS AS STRUCTURAL CALCULATION @ 400MM C/C, FIXED INTO STEEL JOIST HANGER SUSPENDED FROM STEEL UNI-BEAM AS PER DRAWINGS (ALSO REFER CALCULATIONS). NEW JOISTS ARE TO BE FIXED VIA TIMBER HANGERS TO 225 X 50MM WALL PLATE SECURED WITH M14 WALL ANCHOR BOLTS AT 400MM CENTRES.
ALL JOISTS TO BE SOLID STRUTTING AT 1/3RD CENTRES OF SPAN & EQUAL TO THE JOIST DEPTH. ALL TIMBERS TO BE PRESSURE IMPREGNATED WITH PRESERVATIVE. DOUBLE JOISTS ARE REQUIRED UNDER NEW PARTITION STUD WALLS. 100MM FLAME RETARDANT FIBERGLASS ROCKWOOL FLEX-SLAB (RW2) INSULATION ON CHICKEN WIRE IS TO BE FITTED BETWEEN JOISTS & TO BE EXTENDED TO EAVES TO ACHIEVE A 30-MINUTE FIRE RESISTANCE OVER ALL PARTS OF THE EXISTING LOFT AREA. CONSTRUCTION DETAILS ARE TO BE AGREED ON SITE WITH BUILDING INSPECTOR.

DWARF WALLS: FIX 150X50MM SOFTWOOD SC3 STUDS AT 400MM CENTRES TO 150X50MM SOLE PLATE SPIKED TO UNI-BEAM. FIT 100MM THICK KINGSPAN 'THERMAWALL' INSULATION BETWEEN STUDS AND 35MM THICK KINGSPAN 'THERMAWALL' INSULATION OVER STUDS AS PER DRAWING. FIX 12.5MM PLASTERBOARD & SKIM TO INTERNAL FACE OF WALLS.

LOFT PERIMETER WALLS: FIX 100X50MM SOFTWOOD SC3 STUDS AT 400MM CENTERS TO 100X50MM SOLE AND HEAD PLATE. FIT 100MM THICK KINGSPAN 'THERMAWALL' INSULATION BETWEEN STUDS AND 35MM THICK KINGSPAN 'THERMAWALL' INSULATION OVER STUDS (INTERNAL FACE) AS PER DRAWING. FIX 12.5MM PLASTERBOARD & SKIM TO INTERNAL FACE OF WALLS.

NEW PARTITION WALLS TO BE 75X50MM SC3 SOFTWOOD FRAMING WITH STUDS AT 400MM C/C. INSULATED WITH 75MM FIBRE-GLASS INSULATION - REFER BUILDING INSPECTOR FOR APPROVAL. 12.5MM PLASTERBOARD IS TO BE FIXED AND PLASTER SKIM ACCORDING.

PARTY WALLS: FIX 100X50MM SOFTWOOD SC3 STUDS AT 400MM CENTERS TO 100X50MM SOLE AND HEAD PLATE. FIT 100MM THICK KINGSPAN 'THERMAWALL' INSULATION BETWEEN STUDS AND 35MM THICK KINGSPAN 'THERMAWALL' INSULATION OVER STUDS (INTERNAL FACE) AS PER DRAWING. FIX 12.5MM PLASTERBOARD & SKIM TO INTERNAL FACE OF WALLS.

EXTENDED RAFTERS: NEW EXTENDED TIMBER RAFTER TO BE FIXED TO EXISTING RAFTERS TO INCREASE DEPTH TO 150MM. EXTENDED RAFTERS ARE TO DOUBLE EITHER SIDE OF EACH ROOF WINDOW.

ROOF INSULATION: 100MM CELOTEX GA4000 (OR EQUIVELENT) INSULATION FRICTION FITTED BETWEEN EXTENDED RAFTERS ENSURING TO MAINTAIN A 50MM AIRGAP. 45MM CELOTEX TB4000 INSULATION OVER RAFTERS (INTERNAL FACE) AS PER DRAWING ACHIEVING A U-VALUE OF 0.18 W/M²K. FINISH TO BE 12.5MM PLASTERBOARD AND SKIM.

ROOF VENTILATION: AT EAVES AT LEAST 25MM WIDE CONTINUOUS VENT GAP/VERMIN SCREEN TO EXISTING SOFFIT. USE PLYWOOD OR PROPRIETARY DUCTS TO TILT FILLET AT EAVES TO MAINTAIN AIR GAP OVER INSULATION. VENTILATION AT RIDGE AT LEAST EQUAL TO CONTINUOUS STRIP 5MM WIDE USE ETERNIT RIDGE VENTS X 2 SPACED EQUALLY ON ROOF.

DORMER WINDOWS:
PITCHED ROOF DORMER AS POSITIONED ON DRAWING.
DORMER ROOF: THIS IS TO COMPRISE OF 1 LAYER OF GLASS-REINFORCED PLASTIC (GRP) FLAT ROOF COVERING SYSTEM, ON 19MM PLYWOOD TO BE FIXED TO 120MM CELOTEX INSULATION ON TIMBER FIRINGS ON 200 X 50MM C16 TIMBER ROOFING JOISTS - CONFIRM ROOF MEASUREMENTS AND PITCHES ON SITE.
ALL TIMBER TO BE PRESSURE IMPREGNATED WITH PRESERVATIVE.
DORMER CHEEKS: CHEEKS TO THE DORMER TO COMPRISE OF VERTICAL NATURAL SLATES (REUSE EXISTING) FIXED USING GALVANIZED NAILS TO 38X19MM SOFTWOOD TREATED BATTENS SET AT DESIRED GAUGE AND FIXED WITH RING SHANKS FIXED TO 12MM W.B.P. PLYWOOD WHICH IS FIXED TO 100X50MM SOFTWOOD SC3 GRADE STUDS SET AT 400MM C/C.
DORMER TRIMMERS: FIX 3 NO EXTENDED RAFTERS TOGETHER WITH M12 BAR AND TOOTH CONNECTORS AS 'TRIMMERS' TO DORMERS AS PER DRAWING.
VALLEYS: FORM THE VALLEYS WITH CODE 5 LEAD DRESSED OVER 100X25MM SOFTWOOD BOARDS & OVER 38X25MM SOFTWOOD TREATED BATTENS. CODE 3 LEAD SOAKERS UNDER CODE 4 LEAD FLASHINGS TO ALL ABUTMENTS

DOORS/WINDOWS:
ALL DOOR GLAZING WHETHER INTERNAL OR EXTERNAL, ADJACENT LOWER PANES AND GLAZING LESS THAN 800MM ABOVE FLOOR LEVEL TO BE TOUGHENED/SAFETY GLASS IN ACCORDANCE WITH THE PART N APPROVED DOCUMENT. UPVC/TIMBER DOUBLE GLAZED DOOR/WINDOW FRAMING TO CONFORM TO PART L APPROVED DOCUMENT. CONFIRM DOOR PATTERNS/HARDWARE WITH OWNERS.
ALL NEW EXTERNAL OPENINGS TO BE DRAUGHT SEALED. OPENABLE SASHES MIN. ONE TWENTIETH (5%) OF ROOM FLOOR AREAS WITH 8000MM² TRICKLE VENTS TO FRAME HEADS. GLAZING IS TO BE DOUBLE GLAZED WITH LOW E COATING TO ACHIEVE A MINIMUM U-VALUE OF 1.6 W/M²K.
ALL EXISTING AND PROPOSED DOORS TO HABITABLE ROOMS ON THE ESCAPE ROUTE ARE REQUIRED BE REPLACED WITH FD30 FIRE DOORS AND ANY GLAZING MUST BE FIRE RESISTING.
ANY GLAZING IN PARTITIONS BETWEEN A HABITABLE ROOM AND THE ESCAPE ROUTE MUST ALSO BE FIRE RESISTING. GEORGIAN WIRED GLASS IS ACCEPTABLE IN THESE SITUATIONS.
EXTENDED RAFTERS ARE TO DOUBLE EITHER SIDE OF EACH ROOF WINDOW.

SMOKE DETECTION:
MAINS OPERATED SMOKE ALARMS WITH BATTERY BACKUP. ALL INTERCONNECTED ON A SEPARATE FUSED CIRCUIT. ALARMS TO BE POSITIONED ALL AREAS SHOWN - ONE IN EACH AREA AS MARKED "S".

LINTELS/BEAMS:
NEW LINTELS, IF REQUIRED, ARE TO BE CATNIC CN7 OR EQUIVALENT TO EXTERNAL OPENINGS WITH INSULATED BOX SECTION. CN52 TO EACH LEAF OF INTERNAL OPENINGS. 150MM MINIMUM END BEARINGS TO ALL LINTELS/BEAMS. 12.5MM PLASTERBOARD/SKIM FINISH TO ALL LINTELS/BEAMS.

STAIRS: DESIGN GUIDE
TO BE PURPOSE MADE TO REQUIREMENTS WITH MDF GOINGS & PLYWOOD RISERS WITH SOFTWOOD STRINGERS OR AS PER MATERIAL SPEC. STATED ON DRAWING. USE ON SITE MEASUREMENTS WITHIN THE FOLLOWING GUIDE.
MINIMUM 650MM WIDE CLEAR OPENING WITH RISERS MAX. 220MM, 225MM MINIMUM GOING (VERIFY ON SITE).
MAX. PITCH 42 DEGREES. MIN. GOING TO TAPER TREADS 50MM WITH SAME GOING AS REST OF STAIR MEASURED AT CENTRE OF TAPER. DOORS OPENING ON TO NEW STAIRCASES ARE TO HAVE A LANDING OF 400MM BEYOND LEADING EDGE OF THE DOOR OPENING RADIUS.
NEWELS/HALF POSTS AS NECESSARY WITH VERTICAL SPINDLES @ 100MM C/C TO A HEIGHT OF 900MM ABOVE STAIR FLIGHT (MEASURED FROM NOSING LINE), 1M MIN. ABOVE LANDING/FLOOR PERIMETER.
MINIMUM HEADROOM OVER WHOLE STAIRCASE 2M VERTICALLY ABOVE PITCH LINE.
TO ENSURE THAT THE STAIRWAY WILL NORMALLY REMAIN AVAILABLE AS A ROUTE OF ESCAPE IN THE EVENT OF A FIRE, THE EXISTING STAIR AT GROUND, FIRST AND SECOND FLOOR LEVEL MUST BE FINISHED WITH 12.5 PLASTERBOARD AND PLASTER SKIM.

STAIRS, DORMER & LOFT HEIGHTS - IMPORTANT NOTE: THE CONTRACTOR HAS THE RESPONSIBILITY TO ENSURE THAT THE LOFT ACCESS, DORMER & LOFT HEIGHTS AND PROPOSED STAIRCASE LOCATION COMPLY WITH THE MINIMUM HEAD HEIGHT REQUIREMENTS.
THIS SURVEY IS TO BE CARRIED OUT PRIOR TO ANY WORK COMMENCING ON SITE. THE NEED FOR INSPECTION HOLES TO CEILINGS MAY BE REQUIRED TO ALLOW DETAILED MEASUREMENT THIS SUBJECT TO THE APPROVAL BY THE CLIENT.

SERVICES/FITMENTS:
WORK TO INCLUDE ALL NECESSARY ALTERATIONS/EXTENSION OF ELECTRICAL, PLUMBING AND HEATING SYSTEMS TO SUIT NEW LAYOUT.
ALL ELECTRICAL WORK TO IEE REGULATIONS AND APPROVED DOCUMENT PART P (ELECTRICAL SAFETY) MUST BE DESIGN INSTALLED INSPECTED AND TESTED BY A PERSON COMPETENT TO DO SO. PRIOR TO COMPLETION, THE BUILDING INSPECTOR SHOULD BE SATISFIED THAT PART P HAS BEEN COMPLIED WITH THIS WILL REQUIRE AN APPROPRIATE BS7671 ELECTRICAL INSPECTION CERTIFICATE TO BE ISSUED FOR WORK CARRIED OUT. CURRENT EDITION AND MAY INCLUDE GENERAL LIGHTING/POWER SUPPLIES TO APPLIANCES, ADDITIONAL TV/TELEPHONE POINTS, BURGLAR ALARM, EXTERNAL/SECURITY LIGHTING, ETC TO OWNERS DETAILED REQUIREMENTS.

PROVIDE MECHANICAL VENTILATION CAPABLE OF 60L/SEC. TO PROPOSED EN-SUITE/BATHROOM AREAS WITH 15 MIN. OVER-RUN WHERE AREA DOES NOT HAVE AN OPENING WINDOW. VENTILATION SHOULD BE DUCTED THROUGH WALL/ROOF TILE VENT WITH A PLASTIC LOUVRE TERMINAL. PROVIDE ALL HOT AND COLD WATER SUPPLIES TO PROPOSED EN-SUITE/BATHROOM AREAS..'

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REVISION	V1
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