

ALAN BAXTER PARTNERSHIP_{LLP}

CONSULTING STRUCTURAL ENGINEERS



STRUCTURAL IMPACT ASSESSMENT

NORFOLK HOUSE, 8 MONTEPELIER ROW, TWICKENHAM TW1 2NQ PROPOSED ROOF REPAIRS



Job No: P1008
26th June 2024

IAN RICHARDS BSc CEng MStructE, SIMON RAYNER BSc CEng MStructE, Adrian Long BEng (Hons)

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VAT REGISTRATION NO. 373 6951 20 LLP No. OC319497



1.0 INTRODUCTION

- 1.1 This report was commissioned by the building's owner to inspect and appraise the roof structure and provide recommendations for repairs works required. It is to be read in conjunction with the other information submitted with the Listed Building Application.
- 1.2 The information and recommendations given in this report is the result of our visual inspection [limited by access to some areas], a measured survey and a timber investigation. Some areas of the ceiling had been removed to make safe a section that had deteriorated and collapsed. No opening up work has been carried out, pending the submission of a listed building application for work.
- 1.3 It should be noted that there may be special conditions prevailing at the site which are not currently evident and which have not therefore been taken in to consideration. No liability can be accepted for any such conditions.
- 1.4 We visited the property for an initial assessment on 13th March 2024 with a full inspection completed on 16th May 2024 once access to some areas had been improved and temporary support to part of the ceiling installed.
- 1.5 As Structural Engineers, we are not qualified to comment on damp, timber decay or insect infestation.
- 1.6 This report has been prepared for the named Client only and should not be copied in whole or in part or used by third parties, for any use whatsoever, without our prior consultation and written consent.

2.0 GENERAL BUILDING DESCRIPTION

- 2.1 8 Montpelier Row, on the west side of this residential street, is located to the south of Richmond Road, east of Twickenham centre. Marble Hill Park is on the opposite side of the road, with other residential properties to the rear.
- 2.2 The existing building is a four storey [including basement] mid-terrace property constructed traditionally with solid masonry walls, timber joisted floors and timber raftered roof. It is understood to have been built in the early 1720's.
- 2.3 The property is Grade II* listed and is located within the Twickenham Riverside Conservation Area.
- 2.4 The local geology map [British Geological Survey] indicates the site is underlain by Langley Silt Member (Clay & Silt) over London Clay Formation (Clay & Silt).
- 2.5 The building has been vacant for many years, and a major water leak has caused considerable damage to the rear sections of the house, leading to problems with rot and damp. There are signs of deflection throughout the property with uneven floors and movement evident in the walls. The overall condition of the property is very poor.
- 2.6 There is a temporary scaffold roof over the main roof of the property – put in place to provide protection from rain. In addition, polythene sheeting has been placed over the slate finishes and gutters to reduce the risk of further



deterioration of the underlying structure prior to receiving approval for repair works.

- 2.7 The existing roof over the main part of the building comprises a pair of pitched roofs from front to back behind parapet walls to each elevation. There is access to the central valley gutter through a small dormer in the front pitch of the rear roof via a ceiling hatch. There is no access into the attic space of the front roof.
- 2.8 The rear closet wing has an independent hip ended roof comprising pitched rafters with ceiling joists spanning side to side – again behind parapet walls. The ceiling to this section of the property has previously been removed leaving the joist and rafter structure visible from below.
- 2.9 From the central valley gutter there is a gully at its southern end to an open timber channel within the attic space to drain the rainwater within the rear closet wing roof and to its rainwater hopper and down pipes.

3.0 EXISTING ROOF STRUCTURE & CONDITION

- 3.1 The overall roof structure and condition is recorded on drawing P1008-A3-01 [Appendix A]
- 3.2 The rafters pitch up from the front and rear walls to ridges then down to a central valley beam. The valley beam, on the line of the central partition running through the building at each floor, is likely supported by a post within the light-weight panelling partitions enclosing the stairwell to basement level.
- 3.3 The front pitch of the rear roof is close boarded over the rafters with presumably battens supporting the natural slate finish. No roof felt was visible and is unlikely to be present. The rear section of the roof has a fibre board over the rafters. No access to the front attic space was possible to check the build up in that area.
- 3.4 In summary, the main roof has the following structural areas of concern:
 - significant decay and loss of section to the central timber valley beam, particularly in the area of the dormer access/loft hatch, extending both sides of the intermediate support post
 - Ceiling joists to one side of the valley beam pulled out (loss of bearing via tenon)
 - Ends of rafters at eaves with localised decay &/or loss of bearing
 - Ends of ceiling joists at valley beam with localised decay
- 3.5 The Listed Building Timber Investigation [Appendix B] carried out by Tapco HomeDry identified areas within the roof where infestations of wood boring insects (woodworm) were found. In addition, wet rot was found affecting the box gutter timber wall plate and joist ends.
- 3.6 As is usual with investigations of a listed building, full access to all parts of the area under investigation is not possible – either due to access limitations or finishes concealing the underlying structure. Areas not fully available for inspection include the exterior of the front and rear gutters behind the parapets, the attic space of the front roof and the attic space beyond the water tanks to the rear roof.



- 3.7 The roof structure to the rear closet wing is generally visible and no structural defects were evident.

4.0 DISCUSSION

- 4.1 Overall the property is in very poor condition as would be expected having been left vacant for many years. This has been exacerbated by the lack of overall maintenance (such as clearing gutters and gulleys) though the years and not carrying out specific repairs when defects presented themselves.
- 4.2 The damage extends through each of the floors of the property and originate from a known water leak towards the rear of the property, localised failure of the roof finishes generally and specifically in the area of the small dormer access to the valley gutter and water ingress over the rear bedroom resulting in collapse of part of the ceiling.
- 4.3 The open gutter through the attic space of the rear roof is a potential source of leaks though its condition could not be determined due to access. This restriction of access would also limit any repairs that may have been carried out in the past too.
- 4.4 The causes of the defects to the roof structure result from the failure of finishes and consequently, the repairs outlined below must be carried out in conjunction with replacement/repair to the finishes - detailed elsewhere within the application.
- 4.5 **Valley Beam** - The original timber beam in on very poor condition with significant loss of section around midspan and the vicinity of the intermediate support post. A calculation check of the original condition indicates it would have been highly stressed from the time of construction and therefore should be replaced/strengthened/made redundant following a review of options available:

Option 1: Replace the beam with a comparable timber – this would require cutting out the existing (some of which is unaffected) and the cutting through the existing ceiling joists, rafters and valley gutter members requiring significant temporary works (propped down to basement level). The new timber would need to be longer than the clear span to provide sufficient bearing on the party walls. Sourcing such a beam (fully seasoned) would be difficult to achieve and its installation would result in unacceptable levels of disruption and damage to the unaffected historic fabric. A beam of equivalent section size from modern timber will not be as strong as the existing which was already close to the limit of acceptable bending stresses.

Option 2: Use the spine wall through the building as load bearing – the current structure is a beam and post arrangement with the partitions comprising light weight (non-load bearing) panelling. At ground floor level the layout consists of an open plan space – so a new beam would need to be introduced at this level to support the additional weight from the roof and additional timber stud walls – all resulting in unacceptable disruption to the historic fabric.



Option 3: Provide new steel beams either side of the damaged beam - to support the ceiling joists, rafters, gutter and self weight of the beam. This could be installed within the existing voids (spliced to aid installation) requiring minimal temporary works and retaining the majority of the existing structure. Being a reversible intervention it is the least disruptive option.

From a heritage standpoint we consider Option 3 to be the most favourable solution to provide suitable structural repairs sympathetic with the requirements for working on historic buildings.

- 4.6 The ceiling joists have pulled out from the valley beam to the rear side of the roof. This appears to be longstanding and battens have been installed to provide additional bearing. There is no significant movement in the rear elevation to indicate there is progressive movement. However, the installation of horizontal straps between the joists and the wall would increase the inherent robustness and increase overall stability.
- 4.7 There is localised decay to the ends of joists and rafters – particularly vulnerable areas are below the gutters – behind the parapet walls and below the valley gutter. Simple splice repairs can be introduced to the affected timbers to maintain suitable support.
- 4.8 It is not unusual to have some areas of a listed building not visible for inspection at the stage of submitting a Listed Building Application due to the necessary restrictions on invasive investigations. The inspection to date has exposed the major areas of concern and we would expect the front roof to exhibit similar levels of defects requiring similar interventions. We expect there to be a 'watching brief' for a structural engineer to be engaged to carry out further inspections during the proposed repair works and to agree similar repairs to those proposed within this report where currently concealed defects are exposed.
- 4.9 This property is in such condition that to ensure its long term future a full refurbishment will be required. The first part will be restricted to the roof in order to limit further deterioration of the building. As such this is a once in a generation opportunity to address inherent defects and provide additional measures to improve the overall robustness of the structure. To carry out a full inspection of the roof and ceiling members it is proposed to strip the top floor lathe and plaster ceiling – retaining where practical the covings and the slate finish. This will allow better access to the underlying structure to carry out a comprehensive review of its condition and completion of the proposed repairs.
- 4.10 The finishes can then be replaced – re-using slate where appropriate - and a new lathe and plaster ceiling internally. The alternative of carrying out the work in piecemeal fashion would result in a patchwork of repairs with the possibility of leaving areas vulnerable to future problems.



5.0 PROPOSED STRUCTURAL WORKS

5.1 General

The property is generally in very poor decorative order which has resulted in significant defects to the roof structure. The proposed structural repairs are illustrated on our drawings P1008-A3-02 & 03 [Appendix C]

5.2 Valley Beam

Introduction of twin PFC steel beams each side of the central timber valley beam to support the existing rafters, ceiling joists and the self weight of the timber beam which will be left in-situ.

For design calculations refer to Appendix D

5.3 Ceiling Joists

Ceiling joists to be re-supported on joist hangers suspended from the new PFC beams where they meet the valley beam. Where decayed, new timber joists to be spliced alongside. Where decay has occurred at the bearing into the front and rear walls – similar splice detail to be provided.

5.4 Rafters

Where decayed or loss of bearing – splice detail alongside damaged sections to be provided.

5.5 Currently Inaccessible or Concealed Areas

Watching brief by structural engineer to confirm repairs, in line with those outlined once finishes removed and safe access provided. To include, but not limited to, front and rear concealed gutters behind parapet walls including condition of masonry and eaves.

5.6 Infestation of Roof Timbers

Recommendations of Tapco HomeDry report – timber preservation treatment to all accessible roof timbers – to be carried out.

6.0 METHOD STATEMENT FOR STRUCTURAL WORKS

- 6.1 Installation of access scaffold to front and rear
- 6.2 Existing roof coverings (slates and battens) to be carefully removed and set aside for assessment and later re-instatement. Existing timbers to be protected for durations of the works.
- 6.3 Existing ceiling finishes carefully removed – retaining coving where practical
- 6.4 Remove water tanks and guttering finishes
- 6.5 Structural engineer/architect inspection to confirm final repairs
- 6.6 Remove fibreboard over existing rafters where present (but retain timber boarding)
- 6.7 Timber treatment to all roof timbers
- 6.8 Install bearer beams on party walls and cut pockets for new PFC valley beams



- 6.9 Install PFC valley beams alongside timber valley beam in accordance with engineer details
- 6.10 Carry out repairs to ceiling joists and rafters including splicing new sections and re-support at bearings where decayed or pulled out. Similar to gutter timber work at valley and behind parapet walls
- 6.11 Over board rafters where fibreboard removed
- 6.12 Re-instate external finishes – including gutter works
- 6.13 Re-instate internal finishes

**SIMON RAYNER BSc CEng MIStructE
FOR ALAN BAXTER PARTNERSHIP LLP**

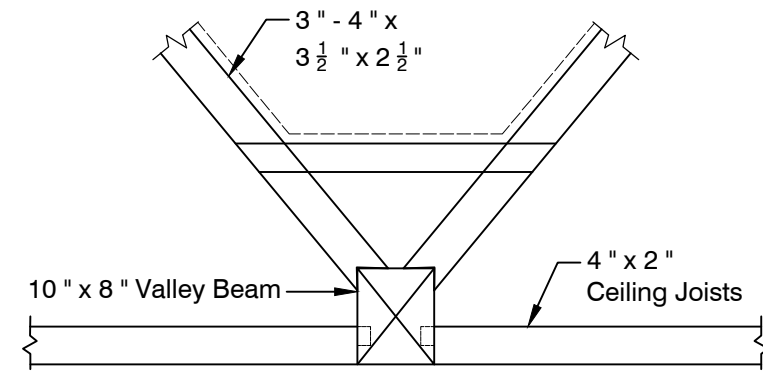
APPENDIX A

EXISTING ROOF STRUCTURE & CONDITION

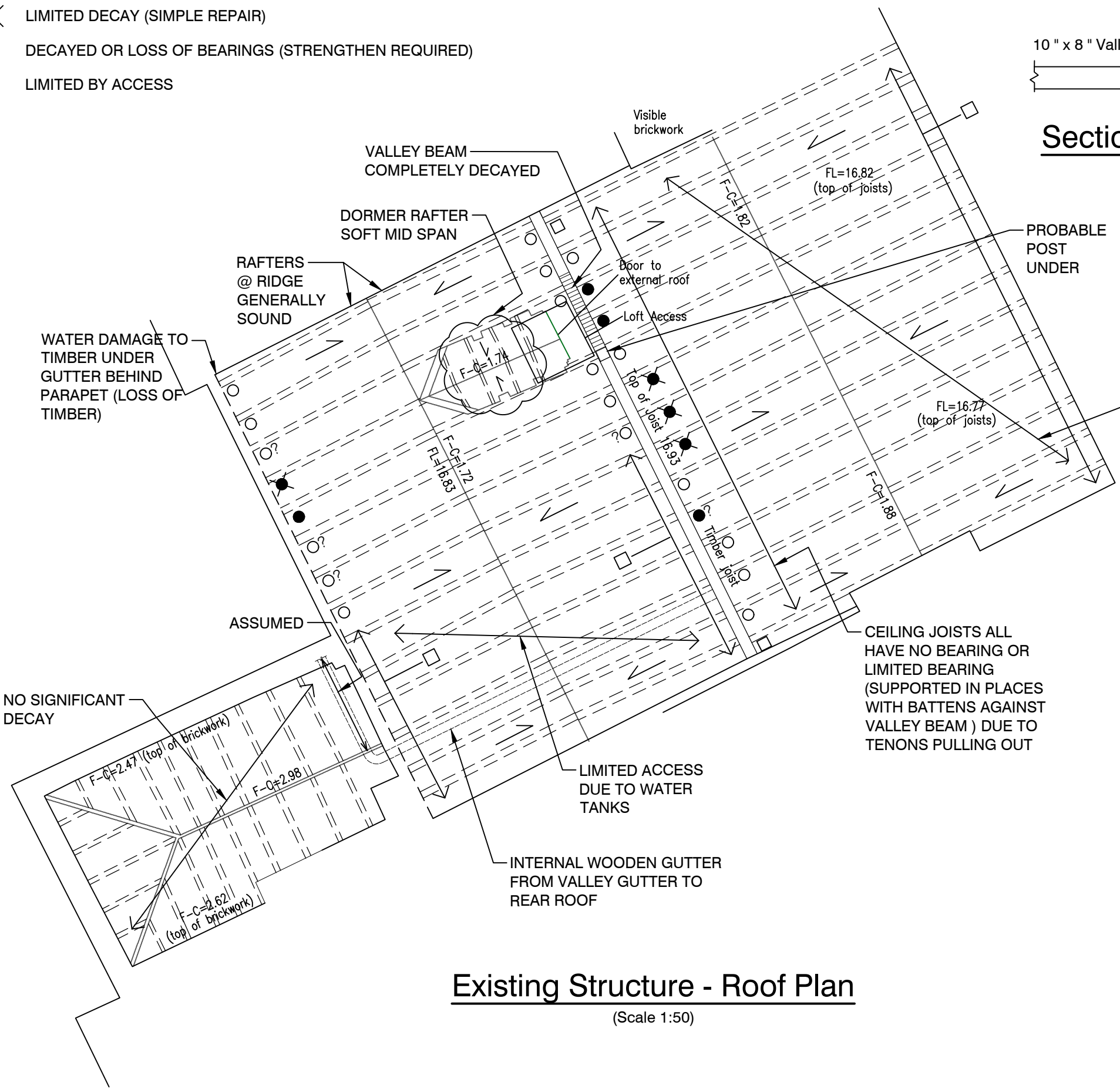
ABP/ P1008-A3-01 Existing Roof Structure & Condition

KEY FOR RAFTER ENDS

- NOT SEEN
- NO SIGNIFICANT DECAY
- ⊗ LIMITED DECAY (SIMPLE REPAIR)
- DECAYED OR LOSS OF BEARINGS (STRENGTHEN REQUIRED)
- ? LIMITED BY ACCESS



Section Through Valley Beam
(Scale 1:20)



Existing Structure - Roof Plan
(Scale 1:50)

- NOTES**
- © COPYRIGHT ALAN BAXTER PARTNERSHIP LLP
 - This drawing & design is the copyright of Alan Baxter Partnership and must not be copied in part or whole without consent.
 - 1. Do not scale off this drawing.
 - 2. To be read in conjunction with all Architects and Engineers drawings.
 - 3. All dimensions and levels to be confirmed by the Architect and Contractor prior to the commencement of the works.
 - 4. All discrepancies to be notified immediately to contract Administrator and Engineers.
 - 5. Only 'For Construction' Issue drawings shall be used for construction or the ordering of materials.
 - 6. Foundation formation levels to be inspected and approved by the local authority.
 - 7. All steelwork to be to execution class EXC2.


FOR INFORMATION

Structural Impact Assessment	HM	SAR	26-06-2024
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Project Title:
**8 Montpelier Row
Twickenham
TW1 2NQ**

Drawing Title:
Existing Roof Structure & Condition

Scale: As Shown @A3	Do not scale from drawing
Drawing Number: P1008-A3-01	Rev: .

APPENDIX B

LISTED BUILDING TIMBER INVESTIGATION

Tapco HomeDry Report Ref: BT/2404S48783/AM [29 April 2024]

**TREATMENT AND
ERADICATION OF
WOODWORM AND
TIMBER DECAY SINCE
1971**

**Investigation
Report and
Recommendations**





Domestic & Commercial Properties

We have been successfully preserving both domestic and commercial properties for over five decades and our vast amount of experience, together with our expertise and high standards, gives you piece of mind for generations to come.



Basement damp proofing at Santander Bank, Marylebone

The Tapco HomeDry Established Guarantee

We are proud of the work we do and stand by our guarantee, so you can feel safe in the knowledge that you have chosen one of the most reputable and reliable companies in our industry.

Tapco HomeDry has been approved and rated by the preservation industries leading trade bodies since 1971 and 95% of our clients say they would use us again.

We fully recognise that your property is probably the most important investment you are ever likely to make, so it is important to us that we provide you with concise advice on how to preserve it, for many years to come.

We are London & the Home Counties market leader for damp-proofing, timber preservation, dry-rot eradication, basement membranes and condensation.

We are highly rated and approved by the preservation industries leading trade bodies, including the Property Care Association, Trust Mark (Government Endorsed Standards) and the Basement Waterproofing Association.

We are also proud to be a certified ISO9001:2015 quality management company.

Our surveyor who carried out this survey, did so, in accordance with the strict standards of the Property Care Association (PCA). Unlike most other companies, he is not paid commission and has only allowed for work that is absolutely necessary.

Once instructed, our fully trained and experienced technicians will carry out the work, thoroughly with as little inconvenience to the occupants as possible.

Remedial work we carry out is covered by our established long-term guarantees, which for a single premium can be insured by GPI (Guarantee Protection Insurance).

Our Reference No: BT/2404S48783/AM

Monday, 29 April 2024

Ali Sultan
Via Email only

Dear Ali

Re: 8 Montpelier Row, Twickenham. TW1 2NQ

Thank you for instructing Tapco HomeDry to carry out a Listed Building Timber Investigation at the above property. Our inspections were carried out specifically in accordance with your instructions, for which we submit herewith our surveyors report and recommendations for your consideration.

Please take the time to **thoroughly read this report**, together with our terms and conditions, to ensure we have not misinterpreted your instructions

Why choose Tapco HomeDry

You can feel safe in the knowledge, you will be using a company that is recognised as one of London and the home counties most established and reputable timber preservation and damp proofing specialists. **We have been trading continuously since 1971** and our technicians are very experienced at carrying out high-quality remedial work, both in domestic and commercial properties, throughout the Southeast of England.

Our health and safety management

Our Health & Safety policy is managed by The Health & Safety People Ltd, we are a CHAS (Contractors Health & Safety Scheme) and a Safe Contractor accredited company. Unless otherwise stated, we have assumed that no hazardous materials such as Asbestos or Artex have been used in the construction of this property, however, it is very important that you inform us if this is not the case.

About our surveyor

Our surveyors observe the code of practice set by the Property Care Association (PCA) but unlike most companies **they are not paid commission**. Therefore, they have nothing to gain by quoting for unnecessary work and will only allow for what that they consider is absolutely necessary.

This investigation was carried out on Thursday, 18 April 2024 By our specialist damp and timber surveyor who is experienced at diagnosing damp and timber decay and to the high standards of the PCA. This report and our proposals are based on his years of experience, professional opinion and the conditions prevailing at the time of his inspection.

Yours sincerely
The Tapco HomeDry Team

Listed Building Timber Report and Recommendations Carried out by Brian Tanner CRDS CTIS

Weather condition

On the day of my survey the weather was overcast.

Survey limitations

My observations are based upon accessibility at the time of my visit, together with information obtained via non-disruptive investigations. **It does not constitute and should not be viewed as a full RICS building survey**, which I strongly recommend on any property prior to purchase. I am neither a building nor structural surveyors and therefore do not provide a comprehensive inventory of any other possible defects the property may have.

The instructions received are taken as specific and this report relates directly to these parts of the property only. Outbuildings or areas considered suitable for storage only, were not included in my survey, unless we were specifically instructed to do so.

The property viewed as facing the front elevation



Orientation

For ease of reference all directions given, are taken as facing the front elevation from outside of the property. Any measurements given by us are approximate and should not be referred to if accuracy is required.

Internal timber inspection and recommendations

The scope of my timber inspections

Moving items of furniture, lifting fitted floorcoverings, or flooring and removing built in furniture or wall plaster is disruptive and outside the scope of my investigations. **Inaccessible areas that are considered at risk from damp or decay, should either be exposed by our technicians at the time of our remedial work, or by others, as a priority.** Moisture readings were also taken to timbers within the areas where dampness is present, to ensure the moisture content has not exceeded 8%. Above this level they are at risk from decay.

As far as could be seen, the structural timbers throughout are **softwood** and the floors have planned edge floorboards. Unless these have been lifted previously, it is often not possible to do so without possible damage, therefore surface inspections only were carried out.

What causes Timber Decay

Timber decay can be a serious problems for buildings of all ages and wood rot and insect infestation are often found in older properties or period homes. In short, timber elements in a building can decay and rot as a result of adverse environmental conditions such as rising damp, water leaks and prolonged exposure to damp or wetness. Many living organisms use timber as food and biological attack can take many forms. The most common and destructive types of timber decay are caused by **Dry Rot, Wet Rot and Wood Boring Insects**. If you own or considering the purchase of a property and you or a surveyor has flagged up timber decay, it is important to understand the nature of it and immediately take whatever measures are necessary to eradicate it,

Wood Boring Insects

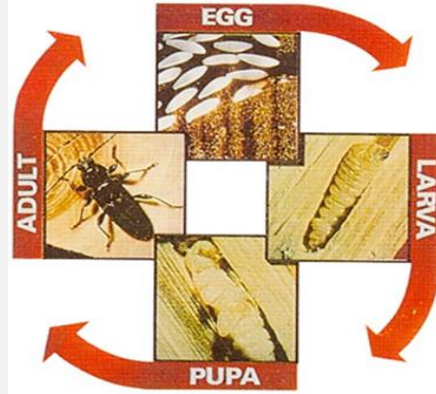
The Common Furniture Beetle (Anobium punctatum), better known simply as woodworm is by far the most widespread of all wood boring insects. Whilst it much prefers the sapwood of softwoods and hardwoods, rot affected heartwoods may also be vulnerable to attack. Poorly ventilated underfloor voids and damp areas under suspended timber ground floors are most at risk from woodworm infestation. Common Furniture Beetle is at it most active between March and August when the weather is warm. Tiny bore holes of 1-2mm in diameter, with gritty, cream coloured bore dust (frass) are it's calling card.

Wet Rot (Cellar) Fungi

The vast majority of timber decay in buildings is caused by Wet Rot (Coniophora puteana) which results in either the timber darkening (known as Brown Rot) or the timber bleaching (aka White Rot). In order to thrive, this fungus requires the presence of persistently damp conditions with a moisture content of about 50-60%. Although some fungi produce fruiting bodies that are similar to dry rot, the main evidence of Wet Rot is usually found in the form of blackish/brown strands. Like Dry Rot, there may also be cuboidal cracking of the timber.

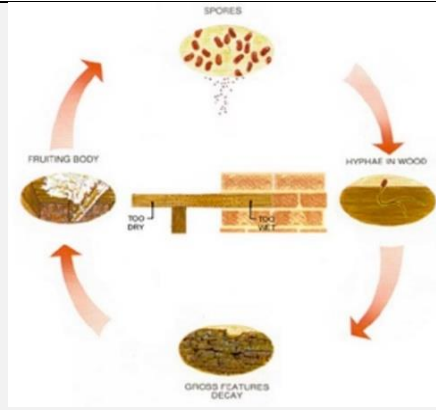
Wood rotting fungi

- The typical life cycle of wood boring insects



Wood boring insects

- The typical life cycle of wood rotting fungi



Roof Timbers

Access to inspect the roof timbers, was gained from a ceiling hatch over the landing.

Areas where Infestations of wood boring insects (woodworm) were found

Evidence of an active infestation of the **Woodworm, Common Furniture Beetle (*Anobium punctatum*)** was found affecting the ceiling joists.

Recommendations:

- Timber preservation treatment has been recommended to all the accessible roof timbers.

Wood rotting timber decay was found

There is an attack of the **Wet-Rot Fungus (*Coniophora puteana*)** affecting the box gutter timber wall plate and joist ends. This could be due to defects with the roof coverings.

Recommendations:

- Timber preservation treatment has been recommended affected timbers mentioned above.

Second Floor

Wood rotting timber decay was found

Rear Bedroom

There is an attack of the **Wet-Rot Fungus (Coniophora puteana)** affecting the accessible floorboards, lintel over door and the subfloor timbers.

Recommendations:

- Timber preservation treatment has been recommended to the floorboards and lintel, together with specified replacement of heavily affected timber in accordance with good building practice.

First Floor

Evidence of infestations of wood boring insects

Front Room

There is evidence of a **scattered infestation of the Woodworm, Common Furniture Beetle (Anobium punctatum)** to the accessible floorboards. In my opinion, it is likely that the sub-floor timbers are also affected.

Recommendations:

- Timber preservation treatment has been recommended to the floorboards, joists and plates.

Wood rotting timber decay was found

Rear Room and Bathroom

There is an attack of the **Wet-Rot Fungus (Coniophora puteana)** affecting the accessible floorboards to the rooms above. The weakened timbers are beyond treatment and need to be removed and replaced, using new pre-treated timber, in accordance with good building practice.

Recommendations:

- Timber preservation treatment has been recommended to the floorboards, joists and plates, together with specified replacement of heavily affected timber in accordance with good building practice.

Staircase

(Three Affected)

Evidence of infestation of wood boring insects

There is evidence of an infestation of the Woodworm, Common Furniture Beetle (Anobium punctatum) affecting the unpainted lower cupboard timbers, treads, and risers.

Recommendations:

- Timber preservation treatment has been recommended to the unpainted, accessible areas.

To enable thorough treatment to be carried out, the stair carpet will need to be removed, and the underside cupboard emptied, prior to the arrival of our technicians.

Ground Floor

Evidence of infestations of wood boring insects

There is evidence of an active infestation of the Woodworm, Common Furniture Beetle (*Anobium punctatum*) to the floorboards. In our opinion, it is likely that the sub-floor timbers are also affected.

Recommendations:

- Timber preservation treatment has been recommended to the floorboards, joists and plates.

Joinery timbers

My inspections were restricted owing to heavily painted surfaces. No visible evidence of any wood boring insects or timber decay was found to the areas inspected

Some of the joinery timbers were probed, using a sharp instrument which exposed evidence of an advanced attack of **Wet-Rot Fungi (*Coniophora Puteana*)** affecting the door frame of the middle room and the joinery timbers of the basement.


Recommendations:

- Some joinery timber replacement is required, to match existing as closely as possible.

Additional Notes:

Areas of wall plaster to the rear of the property are seriously affected by damp. I recommend a further inspection is carried out.

Our estimates are based on the treatment of the sound timbers only. All heavily affected timbers are to be renewed, using new pre-treated timber. by your own contractors

<p>Wet rot fungus to various areas of the property</p>	
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Wet rot fungus to various areas of the property



Wet rot fungus to various areas of the property





Wet rot fungus to various areas of the property




Wet rot fungus to various areas of the property



<p>Wet rot fungus to various areas of the property</p>	
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<p>Wet rot fungus to various areas of the property</p>	
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<p>Wet rot fungus to various areas of the property</p>	
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Sub-floor ventilation

Sub-floor ventilation is very important in a property that has suspended timber floors because it can prevent high-levels of moisture within the floor void (condensation) that in-turn leads to damp, associated with wood rotting fungi and wood boring insects. Sub-floor ventilation is usually provided by airbricks installed intermediately, at the base of the wall, which provide air flow to keep the timbers and floor void dry.

In my opinion the existing number of airbricks are adequate, providing they are kept clear of debris or obstruction.

Recommendations:

- No additional airbricks are necessary.

Optional guarantee protection insurance (GPI)

Being a long terms member of the **Property Care Association (PCA)**, we can offer our clients peace of mind by giving you the option to insure our guarantee with Quality Assured National Warranties (QANW) through **Guarantee Protection Insurance (GPI)**. For a low cost, single premium you will have a long-term insurance policy, providing you with valuable protection, should for any reason we cease trading during the guarantee period and not be able to satisfy claims against our guarantees.

For further information on how to take up this option, email alex@tapcohomedry.com

Sometimes it's easier to talk

If you would like to discuss any aspect of my findings or recommendations, feel free to call me on 07956 463 788 and I will be pleased to help you. **Brian**

Quotations for specialist timber preservation

No two jobs are the same but to help you plan the work, I anticipate, the measures I have recommended, will take approximately 2 separate visits to complete.

As a part of our service and to avoid you having to employ other trades, we have separately allowed for certain items of preparation and reinstatement. These are not a direct part of our remedial work, so doing it yourself or having it done properly by a third party will not affect our guarantee.

Our quotations are for carrying out specific works recommended by us only, they do not infer that full, in-depth inspections were undertaken. Our initial inspections are non-disruptive, therefore, it is not possible to fully expose items covered by plaster or floor coverings, until they are fully exposed at the time of our remedial work. If additional work is found to be required, our quotation would have to be accepted and authorised by you, in writing, prior to us continuing.

Please note, if items such as consumer units/meters, pipes or other fitted obstructions aren't moved from walls to be damp proofed, prior to us commencing, we will work around them, and these areas will be exempt from our guarantee.

Minimum charge

Our quotations are based on **all of the recommended work, being carried out as one project.** If only part of the work is accepted our individual prices could change. We have a minimum charge of £580.00 plus vat, where applicable. **Please note:** It is more economical to carry out our recommendations as one job

All timber preservation and associated work undertaken by us will be in accordance with BS8102:2009, the Property Care Association (PCA) code of practice and covered by our 20-year guarantee, with an option of Guarantee Protection Insurance. <https://www.gp-insurance.co.uk/>

Roof Timber Preservation Treatment

- Brush clean and prepare the accessible roof frame and apply an application preservative treatment to all accessible roof timbers, at the approved rates.

Floor Timber Preservation Treatment

- Lift sufficient floorboards to gain complete access to the underside timbers, bush clean and apply a preservation treatment to all the exposed flooring timbers at the approved rates.

Staircase Timber Preservation

- Brush clean and prepare the staircase and apply two applications of a preservative treatment to all unpainted staircase timbers.

Our technicians are very experienced at carrying out remedial timber preservation and damp proofing at occupied properties and will consider the needs of the occupants at all times. We use only the most up to date methods, best quality materials and the safest of preservatives which have no odour, no vapour and a one-hour room re-entry time.

PLEASE BE AWARE OUR WORK IS DISRUPTIVE

Important preparation that must be done, prior to the arrival of our operatives

Please be aware, the remedial work we have recommended is disruptive, therefore, all items in rooms to be treated should ideally be removed by others, prior to the arrival of our operatives. We appreciate the obvious inconvenience this may cause, but we must emphasise, there is no 'quick fix' for treating timber and **compromise should not be considered**.

- Some air-borne dust or blemishes, when carrying out the treatment is unavoidable, so it is important that you ensure all soft furnishings including carpets, curtains, blinds etc are removed from the rooms to be treated before our arrival. All wood and laminate flooring, ceramic tiles and general floor tiles must be fully covered and protected against scratches and blemishes. We also suggest that all doors to surrounding rooms are sealed against dust using a suitable tape.

Damage to unprotected electrical wiring, cables or plumbing is possible

- It is your responsibility to inform us of the possible location of any hidden pipes or wiring, prior to our work commencing. In the absence of such information, Tapco HomeDry will not accept any liability for any damage that may occur to any such items, or for the cost of repairing them.

If the property is tenanted, it is very important that you make the occupants fully aware of this information and that all necessary preparation and protection is carried out, prior to our arrival. Failure to do so could result in an abortive visit charge being made.

- Work starting without the necessary preparation **will be at your own risk**
- Our technicians will remove all debris and excess material accumulated by our work only and leave the areas tidy. **Please be aware, further cleaning will be required by others.**

Our terms of payment

50% deposit is required at the time of scheduling with the total balance being due **7-days following receipt of our invoice**. On larger contracts, we may ask for interim payments as the work progresses. To avoid delaying completion of the work, these must also be paid immediately on receipt of our invoice.

Late payments, whether this be before or after judgement, will incur a late payment fee of **4% a month, above the base lending rate**, Should this action be necessary you will forfeit your rights to our guarantee..

Ownership of any equipment, manufacturers warranties and our guarantee will only apply from the date we receive full and final settlement of our account.

If you have any questions about us or you would like to schedule the work

We hope you find our information helpful, however **please take the time to read our report and our terms and conditions thoroughly** to ensure we have dealt with your concerns and not misinterpreted your instructions. Alternatively, if you have any questions about us, or you would like to schedule the work, **call one of our contracts team on 020 8398 6663** and they will be pleased to help you.

Aborted visit charge

The work at your property will be scheduled for our most suitable operatives. If it is postponed, with less than two working days' notice, or upon their arrival they can't commence, for whatever reason, on your part, **an aborted visit charge of £380.00 plus vat will be made** to cover part of our loss.

It is important that you ensure all areas where we are working, are clear of all obstructions and are fully accessible before we arrive.

Report copyright

Please note: The contents of this report and our recommendations are for the benefit of the addressee only and covered by copyright. They must not be reproduced for a third party, in any form, including electronic or mechanical means, without written permission from **Tapco (Preservation) Ltd.**

Thank you again for choosing **Tapco HomeDry**, we assure you of our very best attention and service for the duration of the contract and await your further instructions.



'Tapco HomeDry, the Professional Preservation Company you can Trust'

Trust in our accreditations

We are a long-term member of the Property Care Association (PCA), Trustmark (Government Endorsed Standards), an accredited ISO 9001:2015 quality management approved company, a member of the Basement Waterproofing Association (BWA) and rated as 'Excellent' by Trustpilot.



Tapco HomeDry Terms & Conditions (The Small Print)

1. Our quotation allows for treatment recommended by us and where specified only. If it is found whilst our work is in progress that other areas are affected, in need of timber replacement or plastering, an additional estimate or quotation would be submitted.
2. We reserve the right to make any variation in design, construction, or materials, should it become necessary during the course of our treatment, without prior notice, but without lessening the design performance.
3. Payment terms must be agreed, and our form of acceptance completed and returned to us, prior to commencement of the work.
4. Payment in full is due on completion of the work. Interest on a daily rate of 4.0% per year above the base lending rate will be charged on late payment. If it is necessary for us to instruct a third party or to take legal action to recover monies, we reserve the right to withhold our guarantee. A deposit is required before commencement of work and interim payments may be required whilst our work is in progress. We also reserve the right to withdraw our labour and materials until due payment has been received.
5. Failure to pay our invoice in full, immediately on completion of the work, will result in our offer of discount, being withdrawn.
6. In cases where the treatment is subject to an insurance claim, we shall require the client to complete an assignment, thereby authorising the insurance company to pay us directly. It is the sole responsibility of our client to ensure we are paid in full.
7. For the safety of any occupants of the property or any other persons or pets, the property must be vacated whilst our work is in progress and for one hour following completion. If work is to be carried out to a party wall, it is the client's responsibility to obtain a party wall agreement prior to us commencing the work.
8. It is your responsibility to ensure that all areas where work is to be carried out, including areas of access, are clear of furniture, floor coverings, curtains. Blinds, soft furnishings and any other obstructions, before we commence work. If you require Tapco HomeDry to move any such, or obstructions, this will need to be agreed and paid for, prior to us starting. Any items remaining in rooms to be treated will be at the owners own risk.
9. Although care will be taken, we will not be liable for any repairs that may be required to plumbing, electrical fittings, valves, appliances etc, if found to be defective at the time of moving, or for damage caused to plumbing or electricity cables, that cannot reasonably be seen, whilst our work is in progress.
10. Client is to ensure that a supply of electricity and water is available. If it is necessary for us to obtain an electricity generator, a charge for hire would be made.
11. Should the work be interrupted by you causing delay of completion, or should you cancel part of the work whilst it is in progress, any loss incurred by us, or any additional expenses would be charged to the client. Time scales for completing the work, are a guide time only and cannot be guaranteed.
12. Our quotations include the removal of rubbish and debris accumulated by us only.
13. Where it was not possible for our surveyor to assess the thickness of the existing wall plaster, any additional thicknesses, exceeding 25mm, will require additional render coats and be charged for. A further price would have to be submitted and agreed by you, in writing, prior to us continuing the work.
14. Removing wall plaster is dusty and plastering is a wet trade. Whilst care will be taken, we cannot accept any liability for any damage, blemishes or staining which may occur to decorations, polished floors, tiled floors, floor covering, fitted carpets, drives, gardens etc., all of which must be fully protected by you, prior to the arrival of our technicians.
15. We accept no responsibility for the renewal or repair of any ceiling cornices, mouldings, external plinths etc. which may be damaged, or may need to be removing, during the course of certain treatments. Further quotations would be given by us or a specialist company for the renewal or repair of such items.
16. Whilst care will be taken when removing skirting boards or joinery timbers, some damage may be unavoidable, particularly if they are decayed or fixed with large nails or screws. Should damage occur or decay is discovered, you will be informed and upon your request, we shall submit a further quotation to supply and fit new timbers to match existing as closely as possible.
17. Because of the restricted preservative penetration to timbers which are painted or varnished, such timbers would not be covered under the terms of our guarantee, unless they be stripped of paintwork/varnish by you before we commence the work.
18. We accept no responsibility for any decayed timbers or wall plaster removed or replaced by others, if found to be defective at a later date.
19. Damage caused to our damp proof membranes or structural waterproofing systems by a third party will invalidate our guarantee.
20. Any redecorating must be delayed until such time that all residual moisture has dried out. Any wallpapering (including lining paper) must be delayed for a minimum of 12-months. Temporary redecoration such as two mist coats of matt 'trade' emulsion paint may be applied 4-weeks after completion of the plastering. Under no circumstances should paint containing vinyl be used as this will invalidate our guarantee.
21. Our guarantee relating to work carried out will be issued on completion and full and final settlement of our account. It will apply to treatment carried out by us, in accordance with our specification only. We reserve the right to withhold our guarantee if our terms and conditions are not adhered to.
22. In addition to our recommendations, it is imperative that all building repairs specified by us, are carried out either by Tapco HomeDry or your own contractor without delay. It is also your responsibility to ensure the property is kept well maintained and free from moisture ingress at all times. Failure to do so would invalidate the terms of our guarantee.
23. Should we be called upon during the guarantee period to reinspect the premises you will be required to complete a claims form and return it to us, together with a nominal deposit and a copy of the guarantee. Should the reinspection be abortive, your deposit will be retained as payment of our costs. Alternatively, if there is a reoccurrence of dampness, decay or infestation, in areas covered by our guarantee, and there is a fault with our recommended treatment, the deposit will be refunded and any remedial works carried deemed necessary by us will be carried out in accordance with our recommendations, without charge.
24. An admin charge would be made for duplicate reports and guarantees.
25. Once a start date for the work has been scheduled, a minimum of two- working days' notice is required should the date be altered. Shorter notice will incur a fee to cover any loss incurred by the company.
26. Notification of any claim or alleged damage or complaint must be made in writing within fourteen-days of the completion of work. We shall not accept any liability for any repairs carried out by a third party without our prior consent.



There is no 'quick fix' for treating woodworm, timber decay or damp and compromise shouldn't be considered. We pride ourselves on being London and the Home Counties premier timber preservation and damp proofing company with service and a high standard we are proud of.

We eradicate woodworm and timber decay from all domestic and commercial properties, using only the safest methods and preservatives. We are specialists at:

- Treating and eradicating infestations of wood boring insects
- Treating and repairing timbers affected by wood rotting fungi
- Rectifying building defects that cause timber decay
- Increasing sub-floor ventilation

For our domestic clients, we are a long-term member of the PCA (Property Care Association) and a **5-star Which? Trusted Trader**

For our corporate clients we are a certified ISO9001@2015 quality management company, Safe Contractor accredited, Chas accredited and our technicians hold CSCS certification. Health and Safety is managed by The Health & Safety People Ltd.



Tapco HomeDry are London and the Home Counties leading specialists in the diagnosis and eradication of dampness, timber infestation and decay.

☎ 020 8398 6663

🌐 www.tapcohomedry.com

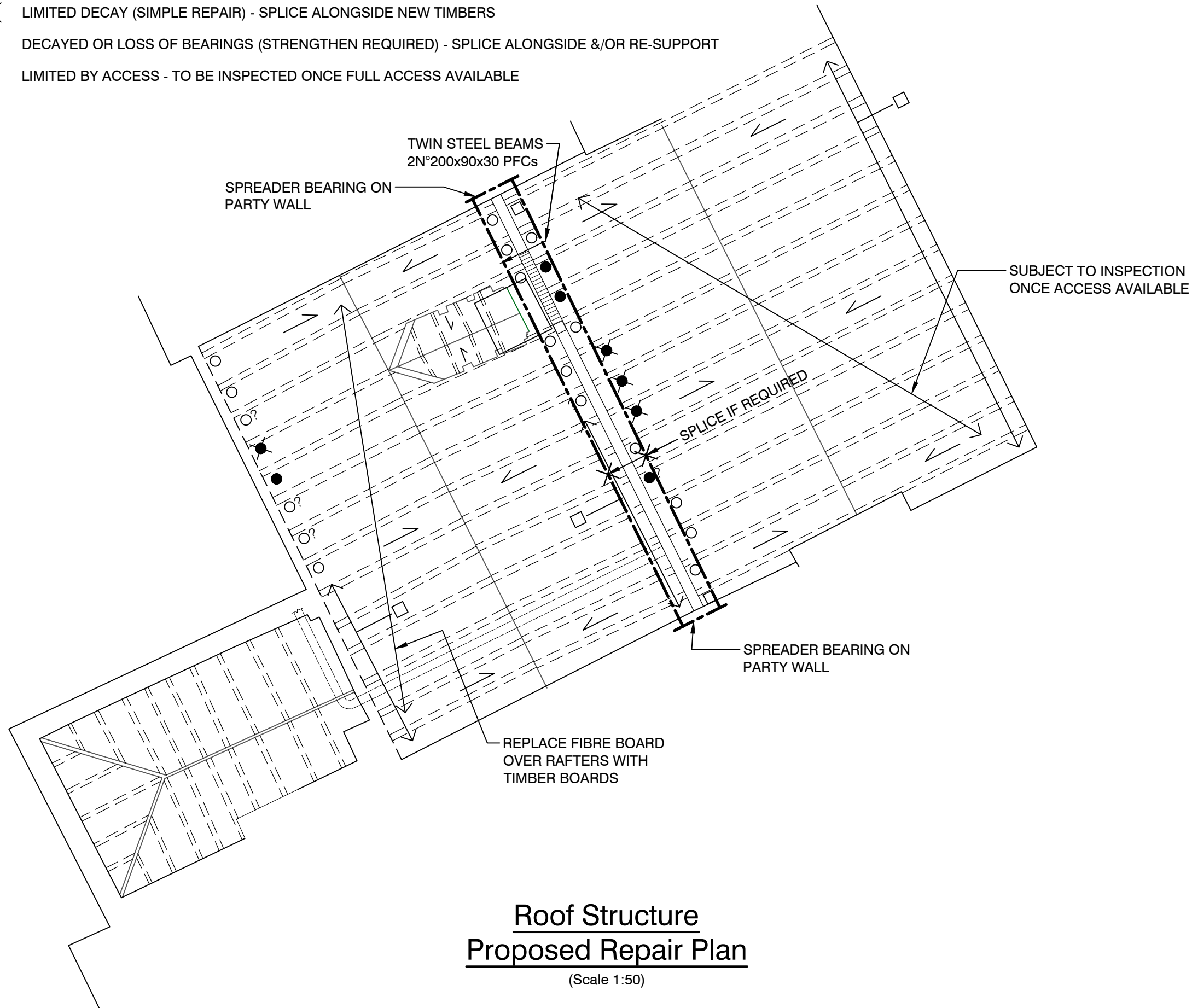
APPENDIX C

PROPOSED STRUCTURAL WORKS

ABP/ P1008-A3-02 Roof Structure Plan – Proposed Repair Works
P1008-A3-03 Roof Structure Plan – Typical Details

KEY FOR RAFTER ENDS

- NOT SEEN - TO BE INSPECTED ONCE FULL ACCESS AVAILABLE
- NO SIGNIFICANT DECAY - NO PROPOSED WORKS
- ⊗ LIMITED DECAY (SIMPLE REPAIR) - SPLICE ALONGSIDE NEW TIMBERS
- DECAYED OR LOSS OF BEARINGS (STRENGTHEN REQUIRED) - SPLICE ALONGSIDE &/OR RE-SUPPORT
- ? LIMITED BY ACCESS - TO BE INSPECTED ONCE FULL ACCESS AVAILABLE




- NOTES**
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 - 1. Do not scale off this drawing.
 - 2. To be read in conjunction with all Architects and Engineers drawings.
 - 3. All dimensions and levels to be confirmed by the Architect and Contractor prior to the commencement of the works.
 - 4. All discrepancies to be notified immediately to contract Administrator and Engineers.
 - 5. Only 'For Construction' Issue drawings shall be used for construction or the ordering of materials.
 - 6. Foundation formation levels to be inspected and approved by the local authority.
 - 7. All steelwork to be to execution class EXC2.

FOR INFORMATION

Structural Impact Assessment	HM	SAR	26-06-2024
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ALAN BAXTER PARTNERSHIP LLP
CONSULTING STRUCTURAL ENGINEERS
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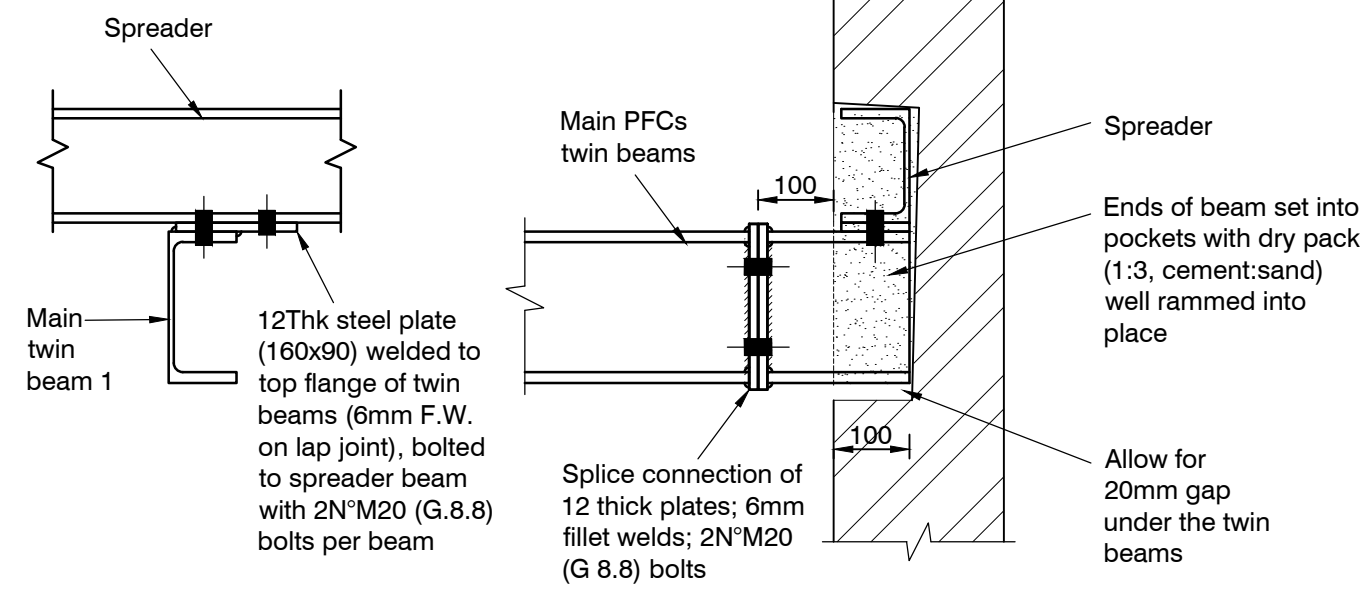


Project Title:
8 Montpelier Row
Twickenham
TW1 2NQ

Drawing Title:
Roof Structure Plan
Proposed Repair Works

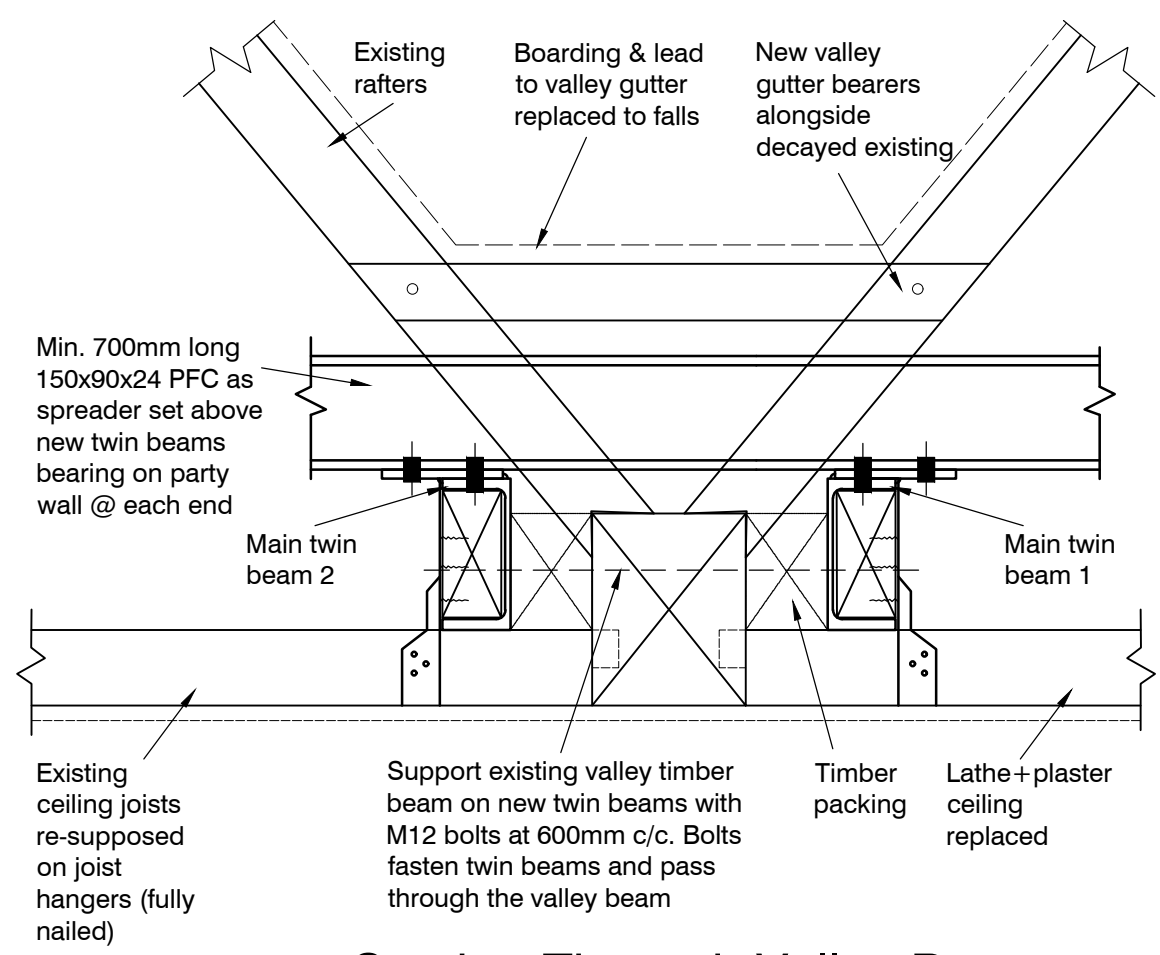
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Drawing Number:	P1008-A3-02	Rev:

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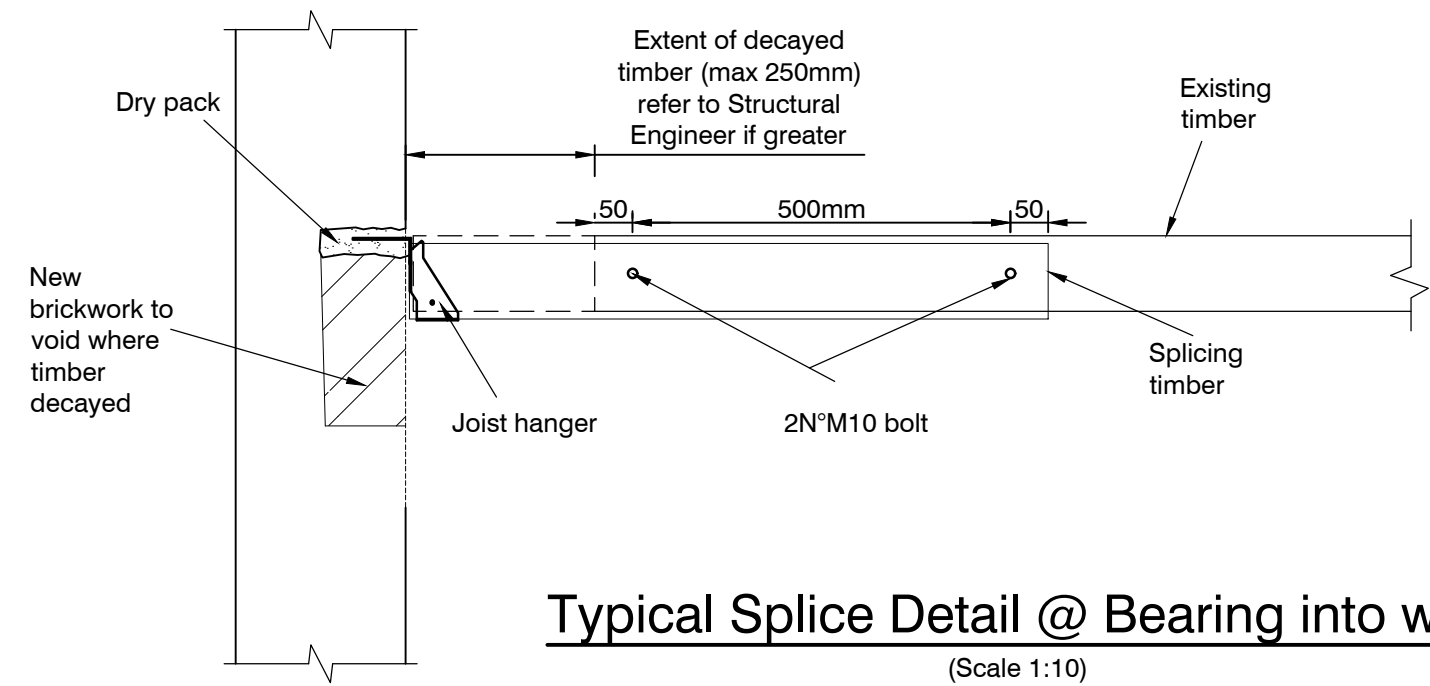
**Typical Splice Detail at End of Steel Beam
Between Party Walls (to aid installation)
Where Damage to Original Ceiling is to be
avoided)**

(Scale 1:10)



Section Through Valley Beam

(Scale 1:10)



Typical Splice Detail @ Bearing into wall

(Scale 1:10)


FOR INFORMATION

-	Structural Impact Assessment	HM	SAR
			26-06-2024

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Project Title:
**8 Montpelier Row
Twickenham
TW1 2NQ**

Drawing Title:
**Roof Structure Plan
Proposed Repair Works
Typical Details**

Scale:	1:10 @A3	Do not scale from drawing
Drawing Number:	P1008-A3-03	Rev:

APPENDIX D

STRUCTURAL CALCULATIONS

P1008-01 to 06 Replacement Valley Beam Calculations

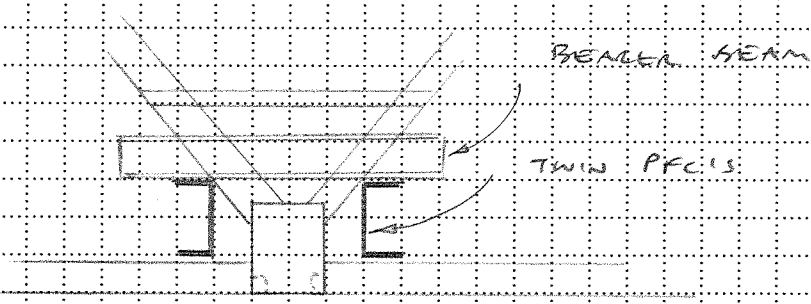


PROJECT: 8 MONTPELIER ROW TWICKENHAM TWI	MADE BY: SAR	CHECKED:	PAGE No: 01	REV.
	DATE: JUN '24	JOB No: P1008		

STRUCTURAL CALCULATIONS

REPLACEMENT VALLEY BEAM

- BEAM TO SPAN PARTY WALL TO PARTY WALL (S.S.M)
- TO SUPPORT CEILING JOISTS / RAFTERS / S.W EXISTING BEAM



- PROVIDE TWIN BEAMS
- ANALYSE FOR 1st BEAM

PROVIDE 2^{NO} 200 x 30 x 30 PFC'S
WITH 150 x 30 x 24 PFC SERRA



PROJECT:	MADE BY: SAR	CHECKED:	PAGE No: 02	REV.
	DATE: JUN'24	JOB No: P1008		

DESIGN LOADS

1) ROOF (~45° pitch)

SLAGS	0.65
BATTENS	0.05
FELT / BOARDING	0.18
RAFTERS	0.10

$$0.98 \text{ kN/m}^2 @ 45^\circ$$

$$\approx 1.4 \text{ kN/m}^2 \text{ (PLAN)}$$

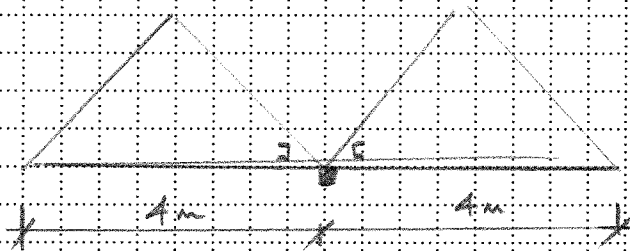
MAINTENANCE ACCESS $0.75 \left(\frac{60-45}{30} \right) = 0.4 \text{ kN/m}^2 \text{ (PLAN)}$

2) CEILING

BOARDING	0.11
JOINTS + INS.	0.10
L+P	0.25

$$0.5 \text{ kN/m}^2$$

AGRIC LOADING 0.25 kN/m^2



3) BEAM SELF WEIGHT

$$10'' \times 8'' \quad 0.25 \times 0.2 \times 6.6 \text{ kN/m} = 0.33 \text{ kN/m}$$



PROJECT:	MADE BY: SAR	CHECKED:	PAGE No: 03	REV.
	DATE: JUN'24	JOB No: P1008		

LOADING TO EACH BEAM

$$\text{Roof}_D \quad 4\text{m}/2 \times 1.4 = 2.8 \text{ kN/m}$$

$$\text{Roof}_L \quad 4\text{m}/2 \times 0.4 = 0.8 \text{ kN/m}$$

$$\text{CEILING}_D \quad 4\text{m}/2 \times 0.5 = 1.0 \text{ kN/m}$$

$$\text{CEILING}_L \quad 4\text{m}/2 \times 0.25 = 0.5 \text{ kN/m}$$

$$\text{BEAM SW}_D = 0.35 \text{ kN/m}$$

REFER TO ANALYSIS PAGES 04 - 06

PROVIDE 2 NO 200 x 20 x 30 PFC'S

A7 PARTY WALLS - PROVIDE BEARER BEAM

RATHER THAN CUTTING IN PROFILES

WHICH WOULD DAMAGE CORNICING

$$R_{oL} = 15.8 \text{ kN}$$

$$\text{Limy } \sigma_{pu} < 0.42 \times f_{cs} = 0.63 \text{ N/mm}^2$$

$$L > \frac{R_{oL}}{\sigma_{pu}} = \frac{15.8 \times 10^3}{100 \times 0.63} = 250 \text{ mm}$$

PROVIDE MIN 500 CORR 150 x 20 PFC

Beam: Beam to valley [1 of a pair]

Span: 5.5 m.

	Load name	Loading w1	Start x1	Loading w2	End x2	R1comp	R2comp	Defl.	
O D	o.w.	0.3	0		L	0.83	0.83	3.6	
U D	roof	2.8	0		L	7.70	7.70	33.4	
U L	roof	0.8	0		L	2.20	2.20	9.5	
U D	ceiling	1	0		L	2.75	2.75	11.9	
U L	ceiling	0.5	0		L	1.38	1.38	6.0	
U D	self weight beam	0.35	0		L	0.96	0.96	4.2	
Total load (unfactored):						31.62 kN	15.81	15.81	68.5
Dead/Permanent (unfactored):						24.47 kN	12.24	12.24	53.0
Live/Variable (unfactored):						7.15 kN	3.58	3.58	15.5
Total load (factored):						45.71 kN	22.85	22.85	

Load types: O:Beam o.w.; U:UDL; Load positions: m. from R1; Load durations: D: Dead; L: Live

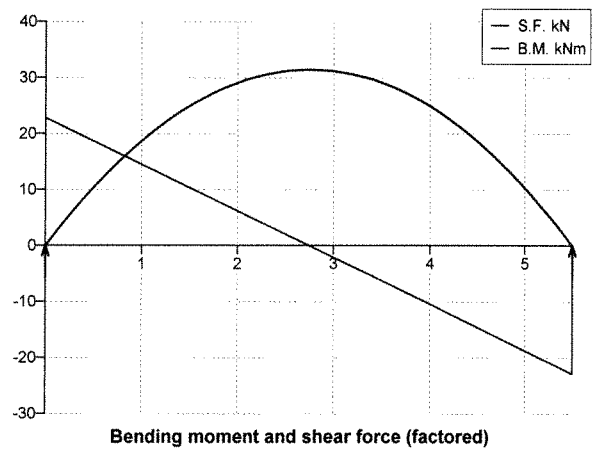
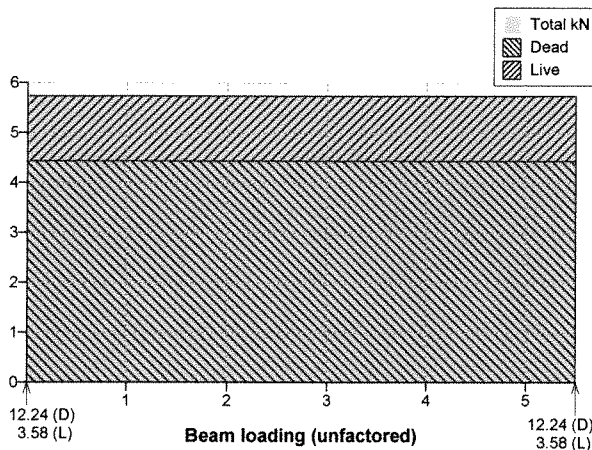
Maximum B.M. = 31.42 kNm (factored) at 2.75 m. from R1

Maximum S.F. = 22.9 kN (factored) at R1

Mid-span deflections: Dead: $53.0 \times 10^9/EI$ (E in N/mm^2 , I in cm^4)

Live: $15.5 \times 10^9/EI$

Total: $68.5 \times 10^9/EI$



Beam calculation to BS5950-1:2000 using S355 steel

SECTION SIZE : 200 x 90 x 30 PFC S355 (compact)

$D=200.0$ mm $B=90.0$ mm $t=7.0$ mm $T=14.0$ mm $I_x=2,520$ cm⁴ $r_y=2.88$ cm $S_x=291$ cm³ $x=12.9$

Section classification: $T = 14.0$ mm $p_y = 355$ N/mm² $\epsilon = \sqrt{(275/355)} = 0.88$

(Table 11)

Flange: $b/T = 90.0/14.0 = 6.43 (<=9\epsilon)$: Class 1 plastic

Web: $d/t = 148.0/7.0 = 21.1 (<=40\epsilon)$: Class 1, plastic

For design purposes section classification is Class 2, compact

Shear

Maximum S.F. = 23 kN

Shear capacity = $0.6 p_y t D = 0.6 \times 355 \times 7.0 \times 200.0/1000 = 298$ kN OK

Bending

Maximum B.M. = 31.4 kNm

Moment capacity, $M_c = p_y S_x = 355 \times 291/1000 = 103$ kNm OK

Lateral-torsional buckling

Beam is laterally restrained at supports only

*Restraint condition at R1 and R2: Compression flange laterally unrestrained; both flanges free to rotate on plan.
Partial torsional restraint by dead bearing of bottom flange to support (1.2L+2D)*

Effective length = $1.2L+2D = 7.00$ m. [Table 13]

Bending strength, $p_b = 118$ N/mm²

Maximum moment within segment, $M_x = 31.4$ kNm

Equivalent uniform moment factor, $m_{LT} = 0.925$ ($M_2 = 23.6$, $M_3 = 31.4$, $M_4 = 23.6$)

Equivalent uniform moment = $0.925 \times 31.4 = 29.1$ kNm

Buckling resistance moment, $M_b = p_b \cdot S_x = 118 \times 291/1000 = 34.2$ kNm OK

Web buckling and crushing have not been checked

Deflection

LL deflection = $15.5 \times 1e8 / (205,000 \times 2,520) = 3.0$ mm (L/1834) OK

TL deflection = $68.5 \times 1e8 / (205,000 \times 2,520) = 13.3$ mm (L/415)

Beam: Beam to valley [1 of a pair]

5.5 m. span

Section : 200 x 90 x 30 PFC S355

Analysis

From R1 m.	B.M kNm	f_c N/mm ²	S.F kN	f_t N/mm ²	Deflection mm.		
					Dead	Live	Total
0.000	0.00	0.00	22.85	16.32	0.0	0.0	0.0
0.275	5.97	23.69	20.57	14.69	1.6	0.5	2.1
0.550	11.31	44.89	18.28	13.06	3.2	0.9	4.2
0.825	16.03	63.59	16.00	11.43	4.7	1.4	6.1
1.100	20.11	79.80	13.71	9.79	6.1	1.8	7.9
1.375	23.57	93.52	11.43	8.16	7.3	2.1	9.4
1.650	26.39	104.74	9.14	6.53	8.3	2.4	10.8
1.925	28.59	113.47	6.86	4.90	9.2	2.7	11.8
2.200	30.17	119.70	4.57	3.26	9.8	2.9	12.6
2.475	31.11	123.44	2.29	1.63	10.1	3.0	13.1
2.750	31.42	124.69	0.00	0.00	10.3	3.0	13.3
3.025	31.11	123.44	-2.29	-1.63	10.1	3.0	13.1
3.300	30.17	119.70	-4.57	-3.26	9.8	2.9	12.6
3.575	28.59	113.47	-6.86	-4.90	9.2	2.7	11.8
3.850	26.39	104.74	-9.14	-6.53	8.3	2.4	10.8
4.125	23.57	93.52	-11.43	-8.16	7.3	2.1	9.4
4.400	20.11	79.80	-13.71	-9.79	6.1	1.8	7.9
4.675	16.03	63.59	-16.00	-11.43	4.7	1.4	6.1
4.950	11.31	44.89	-18.28	-13.06	3.2	0.9	4.2
5.225	5.97	23.69	-20.57	-14.69	1.6	0.5	2.1
5.500	0.00	0.00	-22.85	-16.32	0.0	0.0	0.0

Values are calculated with all loads applied

Bending moment and shear force figures are factored