

Ref: 0683

Level 1 Condition Report

Old Grove House
St Barnabas Road
Emmer Green
Reading

Report Prepared for:

Alex Michie
52 Balmore Drive
Caversham
Reading
Berkshire
RG4 8NN

Written by:

Rupert Hilton
RICS & CIOB Conservation
Accredited Surveyor
MCIOB, MScCHE, BA(Hons)

Date of Issue

25th January 2022

Please Note: This report is submitted subject to the following conditions:

1. This report is issued only on the condition that it is not used in legal proceedings without the express permission of the author.
2. This report does not constitute a formal specification for conservation treatment, building repairs or other work. Recommendations are in general terms only and if any intervention is to be undertaken, we highly recommend the production of a detailed schedule of works and specification.

Job No.	Location	Issue No.	Issue Date	Written	Proof	QA
0683	Old Grove House, Emmer Green	1	25.01.2022	RH	OS	RH

Table of Contents

1	The Report	1
2	Comment on Thermal Efficiency	2
	Condition Report.....	3
3	Roof Covering.....	3
4	Weather Flashings & Abutments.....	4
5	Chimney Stacks.....	5
6	Roof Structure	6
7	Rainwater Goods	7
8	External Walls – Structural Movement.....	8
9	External Walls – Masonry & Mortar	9
10	Timber Frame	11
11	External Ground Levels	12
12	Floors.....	12
13	Windows & Doors	15
14	Services	16
	Outbuildings	16
15	Garage	16
16	Boundary	16
17	Statutory Consents	17
	Appendix A – Historic England List Description.....	18
	Appendix B – How Traditionally Constructed Buildings Perform	19
	Appendix C – The Qualities of Lime Based Materials	21
	Appendix D – Salt Contamination	22
	Appendix E – Implications of Listed Status.....	23
	Appendix F – Energy Efficiency: Implications of Relevant Legal & Regulatory Requirements....	24

1 The Report

Instruction(s):

Level 1 condition report in line with the Janus Conservation domestic condition survey terms and conditions.

Date of Inspection:

The inspection was undertaken by Rupert Hilton RICS & CIOB Conservation Accredited Surveyor, MCIOB, MScCHE, BA(Hons) on 14th January 2022.

Weather:

Dry.

Adopted Approach:

The recommendations rely upon constructional methods of repair and intervention using materials compatible and consistent with the historic fabric, and, wherever possible, repair techniques that are reversible and that maximise the retention of the surviving historic fabric.

Limitations of the Inspection:

Condition survey has been undertaken from ground level/ with a UAV and is non-destructive in nature.

This report is the initial assessment of the condition of the asset. Without further investigation and 'opening-up' of parts of the fabric, the full extent of the issues cannot be fully ascertained.

The age of the building suggests that asbestos may have been used in past phases of renovation. We do not however carry out an asbestos inspection or act as asbestos surveyors when inspecting properties that may fall within the Control of Asbestos Regulations 2012. Where possible asbestos containing materials (ACMs) are noticed, their locations will be identified.

Photographs:

All photographs taken during the inspection, which constitute an excellent record for your file, can be viewed and downloaded at the following link:

https://drive.google.com/drive/folders/1b-8fxI7a0z111Gx7wWEVE1V6g3_-8QfU?usp=sharing

2 Comment on Thermal Efficiency

As the building is listed, the production of an Energy Performance Certificate (EPC) is not a legal requirement. In its current condition however it would be likely to score badly due to the presence of what are highly likely to be uninsulated solid floors, single glazing, and many draughts.

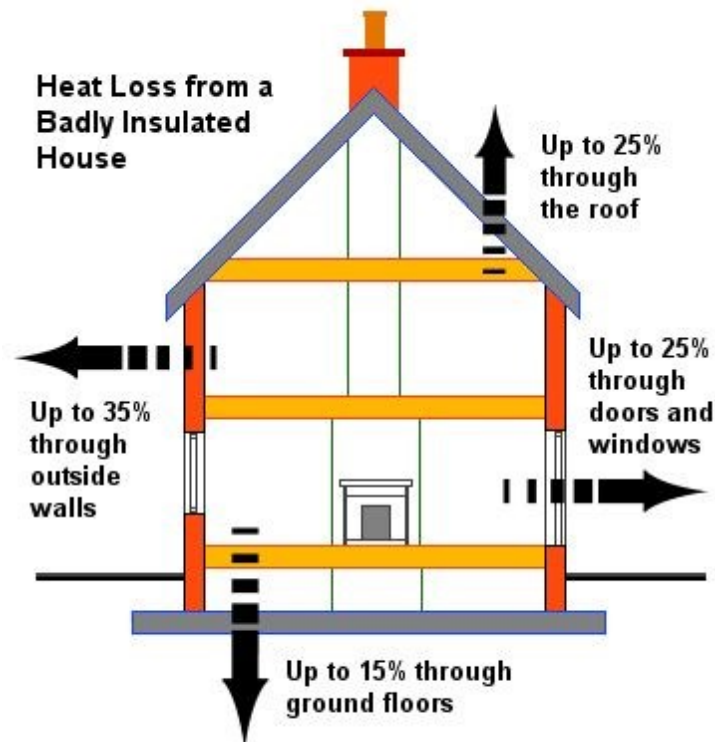


Diagram 1: Estimated Potential Heat Loss in Older Buildings.

There is an opportunity and indeed an ever-increasing legal obligation to significantly improve the building's thermal efficiency through a well-conceived scheme of repair and the possible retrofitting of insulation and other energy efficiency measures. Though, importantly, to prevent possible future issues such as damp and internal condensation, an informed and balanced 'whole building' approach is required.

Before major interventions are considered however, it is paramount that basic repair works are undertaken and an appropriate palette of materials is restored, which will allow the building to dry out naturally and function as intended on a technical level.

Much can be achieved by changing behaviour, avoiding waste, using energy efficient controls and equipment, and managing the building to its optimum performance.

See also [Appendix F](#).

Condition Report

3 Roof Covering



Image 1: Roof Covering

The entirety of the main roof was re-covered last in a single phase of development, as evidenced by the presence of non-permeable bitumastic sarking felt, which probably took place in the 1970s or 1980s.

The roofing tiles used at that time appear to have been a mixture of salvaged units, probably those deemed reusable from the previous roof covering, and new. There is then a disparity of condition between old and new tiles, with many of the former exhibiting moderate to acute spalling - which essentially means they have eroded due to weathering which has compromised their structure.

Many internal repairs were noted to the sarking felt and it was seen to be fraying and perishing in places, which is common when the felt is of significant age. Several slipped and missing tiles were also noted across the roof covering itself along with historic patch repairs externally.

Overall, therefore, the roof covering is showing signs of advanced age including the beginnings of nail fatigue – when the mechanical fixings fail - which is terminal once it takes hold.

Recommendations

Whilst the roof's life expectancy could be extended by undertaking a phase of repair and maintenance. The evidence suggests that it is now coming towards the end of its serviceable life and will require replacing within the next 5, or certainly the next 10 years.

The cost of repair should therefore be balanced against this as access would be required – which in itself can be expensive – and repairing a roof which is delicate in places, especially where spalling is present, can often do more harm than good.



Image 2: Slipped/Slipping Tiles to Front Elevation

It may therefore be better to undertake necessary repairs to ensure the roof's ability to effectively shed water for a short period of time – which may be achievable from a MEWP (cherry picker) - or simply leaving the roof in its current condition if a re-roofing project can be undertaken in the next 2 – 3 years.

See also [Roof Structure](#).

Budget Cost Estimate

A full re-roof for this property would cost in the region of **£50,000 - £60,000 plus VAT**.

Timescale

2 – 3 Years

4 Weather Flashings & Abutments

Weather flashings at junctions and abutments of the roof covering are a mixture of lead and tile abutments.

The level of surface patina exhibited by the lead suggests that it is of significant age and may even have been salvaged/re-used at the time of the last re-roofing scheme. Though no significant

water ingress was noted relating to it, it is almost certainly thinning and cracking which will lead to water ingress. Indeed, several historical bitumastic repairs to prevent water ingress can be seen on the lead.

Tile abutments exist between the kitchen block and the main building. Whilst this is normally a very good and robust detail, in this case the tiles appear to have been bedded in cement (which is a very brittle material and doesn't accommodate movement) and large linear cracking has appeared between the tiles and the flint gable wall which presents a direct route for water ingress.



Image 3: High Level of Surface Patina & Past Bitumastic Repairs to Lead

Recommendation

In the short term, it would be prudent to fill the cracking between the kitchen roof and the main house gable. All the weather flashings, including the lead, however, require replacing as soon as possible to prevent water ingress and possible decay of the timber structure.

It would of course be sensible to do this at the same time as the [Roof Covering](#).

Budget Cost Estimate: *Above price includes this element.*

Timescale

Concurrently with re-roofing – 2 – 3 years.

5 Chimney Stacks

Both chimney stacks are brick built and with intact cementitious flaunchings and clay pots.

Whilst some spalling to the brickwork, which can probably be attributed to the use of a hard cementitious mortar, is visible to both stacks, they are in a reasonable state of repair.

The larger central stack exhibits an outwards lean, but this is quite common on larger units such as this and there is nothing to suggest it is experiencing any significant structural failure.



Image 4: Lean to Central Stack

Recommendations

Ideally, when high level access is gained, the stacks would be raked out and repointed in an appropriately specified lime mortar and all vegetation removed. It would also be beneficial to fit the pots with clay cowls.

Though there are no immediate concerns, the lean of the central stack should be monitored, and any changes or cracking noted to an engineer or surveyor.

Budget Cost Estimate

£4,000 plus VAT.

Timescale

Concurrently with re-roofing – 2 – 3 years.

6 Roof Structure

It should be borne in mind that much of the roof structure is very old – likely original – and therefore is not going to be in pristine condition. Indeed, several phases of past intervention associated with structural movement can be seen in the fabric, probably dating back two hundred years.

Recommendations

Though there isn't any evidence of impending collapse, some current movement is visible, and I do feel at this juncture that another phase of structural intervention, which will probably include the addition of metal straps or pins (though these would need to be specified by an engineer) is required to provide long term confidence in the roof from a structural perspective. Removing the roof covering will provide the perfect opportunity to do this correctly, so these works should be undertaken concurrently with this.

Importantly, there was no evidence of widespread decay caused by rot or woodboring insect. Though minor areas of decay should be anticipated when re-roofing.



Image 5: Historic Repair to Roof Structure

Budget Cost Estimate

£10,000 plus VAT.

Timescale

Concurrently with re-roofing – 2 – 3 years.

7 Rainwater Goods

The rainwater goods system is a mixture of lead, cast iron and PVCu. Though it does appear to be adequately sized, the system as a whole is in a poor general state of repair with missing stop caps and past repairs noted generally. It is also full of debris in places, and I suspect overtopping, which is having a detrimental effect of the [timber frame](#).

Large parts of the system also run directly into the below ground drainage system, i.e., there is no gully, which makes rodding the rainwater pipes very difficult.

Recommendations

To provide long term confidence, the rainwater system requires a full refurbishment which would include removing it from the walls, rubbing down and redecorating (where cast), replacing any corroded/damaged sections and rehanging to provide correct falls. It would also be of benefit to create gullies at the bottom of downpipes.

As a minimum though, the system should be thoroughly cleared out, the importance of this cannot be overstated.

Budget Cost Estimate

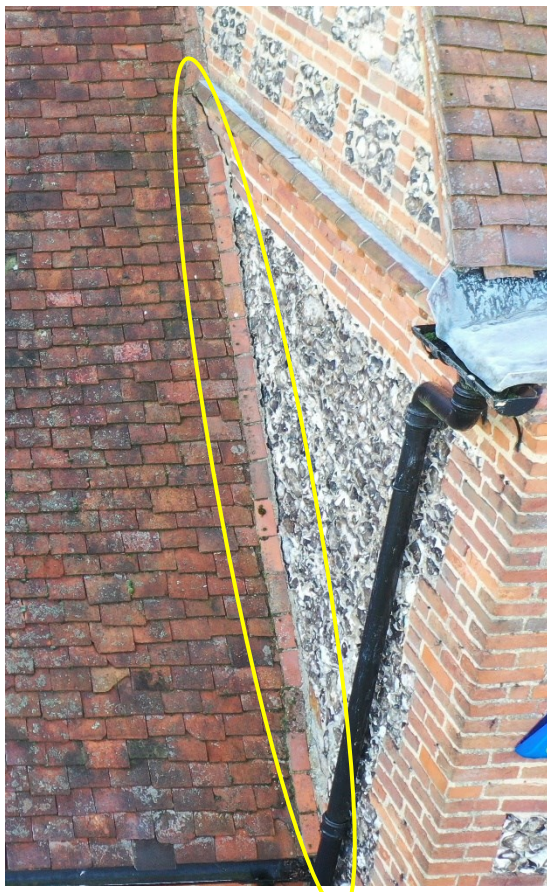
£8,000 plus VAT.

Timescale

12 Months.

8 External Walls – Structural Movement

There is evidence of past structural movement which has been arrested through the installation of several pattress plates/wall ties – which appear to have been largely successful. I do however feel that there is some minor current structural movement which can be seen at the junction between the kitchen block and the gable of the main house – see also [Tile Abutment Detail](#) - and the south-east corner – where a tie plate already exists.



Images 6 & 7: Cracking Consistent with Structural Movement to the Kitchen Block/Gable Wall Junction & South-East Corner Respectively

Recommendations

Though the movement is by no means severe, I do think that *some* structural intervention would be highly beneficial. As with the [Roof Structure](#), any intervention would need to be specified by an engineer and it may well be that the movement relates to the structure.

Budget Cost Estimate

£7,000 plus VAT.

Timescale

Concurrently with re-roofing – 2 – 3 years.

9 External Walls – Masonry & Mortar

Generally speaking, the masonry – which is a mix of flint and handmade clay brick - is in fair condition.

Though areas have been repointed in a hard cementitious mortar, which is in most situations inappropriate for use on solid walled masonry (though flint works slightly differently) happily much of the masonry maintains a technologically apt lime mortar. It is important also to note that much of the cement relates to lower-level areas, which may be an indication of an issue with damp historically. See also [External Ground Levels](#) & [Floors](#).

You should be aware that buildings such as this, which are solid and therefore do not have a cavity, act like a sponge, and absorb water during periods of precipitation and rely on their wide cross-sectional thickness to prevent the water from coming through the internal face. When the rain stops, they go through a drying process aided by the sun and wind, where the retained moisture is evaporated back into the environment (See [Appendix B](#)).

Traditionally this drying out process occurs mainly through the mortar joints, and mortars were specified to be more absorbent and porous with higher capillarity than the surrounding masonry. The mortar therefore is constantly working to protect the masonry and essentially sucks the water out of the bricks, which then evaporates in the atmosphere. This is the basic concept of the breathing building which you may have heard about.

In modern times, however, builders have adopted the use of cement or until very recently Naturally Hydraulic Lime (NHL), both of which – in many situations – can be considered inappropriate for the use of historic buildings. Cement is a one size fits all material which can be used by anyone in any circumstance and should be avoided. However, you should also be aware that there is a spectrum of lime mortars with different characteristics. The skill of the specifier – which would have been second nature to the masons of the past but has now generally been lost – is to choose the correct mortar for the building in question. This takes account of substrate type, aspect, environment/exposure etc.

When the incorrect mortar is specified – one that is denser and less porous and absorbent than the surrounding masonry - it effectively blocks up the joints, which act like the pores of a building, and prevents moisture from escaping through them. For trapped moisture, the path of least resistance is then through the face of the masonry itself which can lead to spalling of the bricks or decay of surrounding fabric.

Permanently damp masonry also decreases the building's thermal mass, making it more difficult to heat. Indeed, research shows that wet walls are up to 40% less thermally efficient than dry walls.



Image 8: Hard Cementitious Mortar at Low-Level to Front Elevation

Recommendations

The building would benefit from a rake out of any cementitious material and repointing in an appropriately specified lime.

See also [Structural Movement](#).

Budget Cost Estimate

£6,000 plus VAT.

Timescale

3 – 5 years.

10 Timber Frame

When discussing the timber frame, it must be considered that much of it is very old. Inevitably then, it is not pristine and shows the scars, changes, and adaptations over the centuries.

Generally speaking, the condition of the frame is fair, and there is certainly nothing to suggest that it is close to widespread failure or collapse. However, several localised areas do exhibit elevated moisture contents and associated decay caused principally by wood boring insect (Deathwatch and Common Furniture). There is also evidence of past repair using cement – see [Masonry & Mortar](#).

I do suspect that much of the decay is being caused by defective [Rainwater Goods](#).



Images 9 & 10: Timber Decay Above Kitchen Door

Recommendations

Ideally a full survey of the timber frame would be undertaken, though at this stage of the sale it is another cost paid out at risk. It is apparent though that *some* joinery repair is required and it maybe better to revise the offer being made to account for the repairs and any perceived risk.

Cementitious mortar surrounding the timbers should be carefully removed and replaced with an appropriate lime mortar.

Budget Cost Estimate

£7,000 plus VAT.

Timescale

1 – 2 years.

11 External Ground Levels

It is likely that external ground levels are considerably higher now than they were at the time the older part of the building was constructed. Furthermore, there is evidence that this has historically caused an issue with damp as a large air dam has been constructed to the front of the property which is generally done so to alleviate this issue.

There is evidence though that penetrating damp caused by high external ground levels continues to be an issue.

Recommendations

To provide long-term confidence external ground levels should be reduced which may be best achieved with the installation of a new air dam to the perimeter of the older part of the building.

Budget Cost Estimate

£7,000 plus VAT.

Timescale

3 - 5 years.

12 Floors

Ground Floor

The ground floor is a mixture of solid floor construction - which in itself is likely to be a mixture of concrete to the kitchen block and family room/bar and tiles laid directly onto the earth in the front reception room. And a suspended timber floor within the dining room and sitting room.

Whilst there is no evidence of defect to the concrete floors themselves, retrospectively installed concrete floors have a very low permeability coefficient and are at odds with the technology employed by traditionally constructed buildings as a response to water. They effectively push groundwater to the side - and as any damp proof membrane installed beneath the floor cannot be chased into solid walls - up the base of the wall.

High moisture meter readings associated with this phenomenon were indeed detected, but perhaps more worryingly and certainly of higher risk, high moisture meter readings were detected to the base of the historic timber posts relating to the original phase of construction - which can precipitate decay.



Images 11 & 12: High Masonry Meter Reading (60.9 when 40 is Normal) & Timber Moisture Meter Reading (36% when Under 15% is Normal) – in Kitchen

The clay tiles within the reception hall exhibit a very curious pattern of salt efflorescence – which in itself is a clear sign of excessive ground water. The pattern runs around the room approximately 50cm from the perimeter walls in a square and there is definite – although localised - subsidence of the tiles to at the right angles.



Image 14: Pattern of Salt Efflorescence to within the Reception Hall

Above the pattern being caused by excessive water, it is difficult to determine what is causing it. It may be for instance that there is a now defunct drainage system, or it possibly represents the foundations of an earlier structure.

The suspended timber floor to the ground floor was bounce tested and there was no evidence of significant decay.

Upper Floors

The suspended timber floor to the ground floor was bounce tested and there was no evidence of significant decay.

Recommendations

There is evidence of penetrating groundwater and, therefore, risk. It is very important then to ask the vendors directly if the property has ever suffered from this to ensure some legal recourse.

Unfortunately, the only solution to the issue with the concrete floor is its removal and replacement with a floor system based on an insulative lightweight aggregate (recycled foam glass or LECA balls) – and a limecrete slab – which could also include underfloor heating.

This would also be possible for the historic floor in the reception, though it would be possible to live with the floor as it is.

My advice in the first instance would be to monitor the issues and see what effect the installation of a more robust air dam has – see [External Ground Levels](#).

There is an opportunity to significantly improve the thermal efficiency of the suspended floor by installing a permeable insulation between the rafters such as woof fibre, sheep's wool, or flax.

Budget Cost Estimate

£50,000 plus VAT. For installation of limecrete floor system.

Timescale

Desirable.

13 Windows & Doors

Windows

Windows to the main house are principally oak single-glazed timber casements with lead comes – which appear to be relatively new. Whilst they are in a fair overall condition; I could not open any of them to ground floor and it may be that they have been purposefully fixed for security reasons. This does though present a significant issue in case of fire.

The windows to the southern conservatory are however in a poor condition with decay to the frames noted generally.

Recommendations

The ground floor windows require further investigation to determine exactly why they won't open, and subsequently an intervention to allow them to do so in case of fire.

At the time of doing so, it is recommended that all frames are re-oiled.

There is an opportunity to significantly improve the thermal efficiency of the building by installing secondary glazing.

Due to its condition, the overall benefit of the conservatory should be considered. It may be possible to demolish it and erect an improvement.

Budget Cost Estimate

£6,000 plus VAT for repair/maintenance.

£10,000 plus VAT for installation of secondary glazing.

Timescale

Immediately due to concerns surrounding egress in case of fire.

Doors

All doors are also timber and in a fair condition.

Recommendations

As with the windows, the doors would now benefit from re-oiling. There is again an opportunity to significantly improve the thermal efficiency of the building by installing draught proofing where it isn't currently present.

Budget Cost Estimate

Included above.

Timescale

1 – 2 years.

14 Services

See Services Report.

Outbuildings

15 Garage

The garage located to the northeast of the main building is generally in a fair state of repair with no evidence of significant defect or structural concerns.

Though by no means in a poor state of repair, the tiled roof covering is now in a state of decline, and the lead valley gutter, which appears to be of significant age and possibly pre-dates the clay tiles, is at the end of its serviceable life.

Recommendations

The lead valley gutter requires replacing as soon as possible, certainly within the next 3 years.

It would at this time be prudent to undertake some maintenance of the tiled roof by replacing any cracked or badly spalled tiles.

The tiled roof is likely to require replacing in the next 10 – 20 years.

Budget Cost Estimates

Replacing lead gutter £3,000 plus VAT.

Timescale

3 years.

16 Boundary

The boundary is essentially made up of brick and flint walls which are generally in a good state of repair and performing well.

Recommendations

Whilst no works are currently required to the walls, I highly recommend that the electric gates are inspected by a specialist.

17 Statutory Consents

The building was listed in 1957 with the most recent amendment being 1978. It is grade II* which is the second highest grade of listing meaning the building is considered to be of 'more than special interest'.

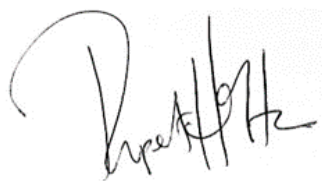
Based on this, the following are likely to have required statutory consents (listed building consent, planning permission and building control approval) which should be requested from the vendor along with any other permissions they may have:

Work Element	Consent Type Likely Required			Risk Level
	Listed Building Consent	Planning Permission	Building Control Approval	
Southern Conservatory	✓	✓	✓	High
PVCu Rainwater Goods	✓	X	X	Low
Cementitious Mortar	✓	X	X	Low
Installation of Oak Casement Windows	✓	X	✓	Moderate

You should be aware that any liability for works undertaken without consents are transferred to the new owner. In theory therefore, the local authority could begin legal enforcement action against you should they deem works have breached legislation.

See also [Appendix E](#).

Written for and on behalf of Janus Conservation Ltd by:



Rupert Hilton
RICS Accredited Conservation Professional
CIOB Conservation Certified Specialist
MCIOB, MScCHE, BA (Hons)

January 2022

Appendix A – Historic England List Description

OLD GROVE HOUSE

Listed on the National Heritage List for England.

Search over 400,000 listed places (<https://historicengland.org.uk/listing/the-list/>)

Official list entry

Heritage Category: **Listed Building**

Grade: **II***

List Entry Number: **1302576**

Date first listed: **22-Mar-1957**

Date of most recent amendment: **14-Dec-1978**

Statutory Address 1: **OLD GROVE HOUSE, SURLEY ROW**

This List entry helps identify the building designated at this address for its special architectural or historic interest.

Unless the List entry states otherwise, it includes both the structure itself and any object or structure fixed to it (whether inside or outside) as well as any object or structure within the curtilage of the building.

For these purposes, to be included within the curtilage of the building, the object or structure must have formed part of the land since before 1st July 1948.

Understanding list entries (<https://historicengland.org.uk/listing/the-list/understanding-list-entries/>)

Corrections and minor amendments

(<https://historicengland.org.uk/listing/the-list/minor-amendments/>)

Location

Statutory Address: **OLD GROVE HOUSE, SURLEY ROW**

The building or site itself may lie within the boundary of more than one authority.

District: **Reading (Unitary Authority)**

Parish: **Non Civil Parish**

National Grid Reference: **SU 71318 76676**

Details

SURLEY ROW 1. 5128 (East Side) Old Grove House (Formerly listed as Old Grove House and barn) SU 7176 5/288 22.3.57. II* 2. Probably early to mid C17. 2 storeys and attic. South-west front roughly symmetrical with 3 gables. Restored. Brick horizontal and vertical banding with 'staggered' flint panels. Brick quoins, dentil string at 1st floor level. Small cut brick dentil eaves cornice (carried up gable verges). Old tile roof. A square chimney stack to right of centre has projecting brick panels each side and elaborately corbelled head. 3 ranges of C19 altered 4 light casement windows with transoms in segmental relieving arches and 1 range of 2 light windows with label. 6 panel door to left of centre in modern porch. Hipped gabled single storey extension to left. Irregular front to north-east with 3 hipped gables, some timber framing with brick infilling. Interior rearranged, timber studs and rails exposed. Targe fireplace with depressed brick Tudor arch and lintel over retaining one mask bracket. A certain amount of oak panelling retaining. A large inglenook let into kitchen with carved lintel over.

Listing NGR: SU7131876676

Legacy

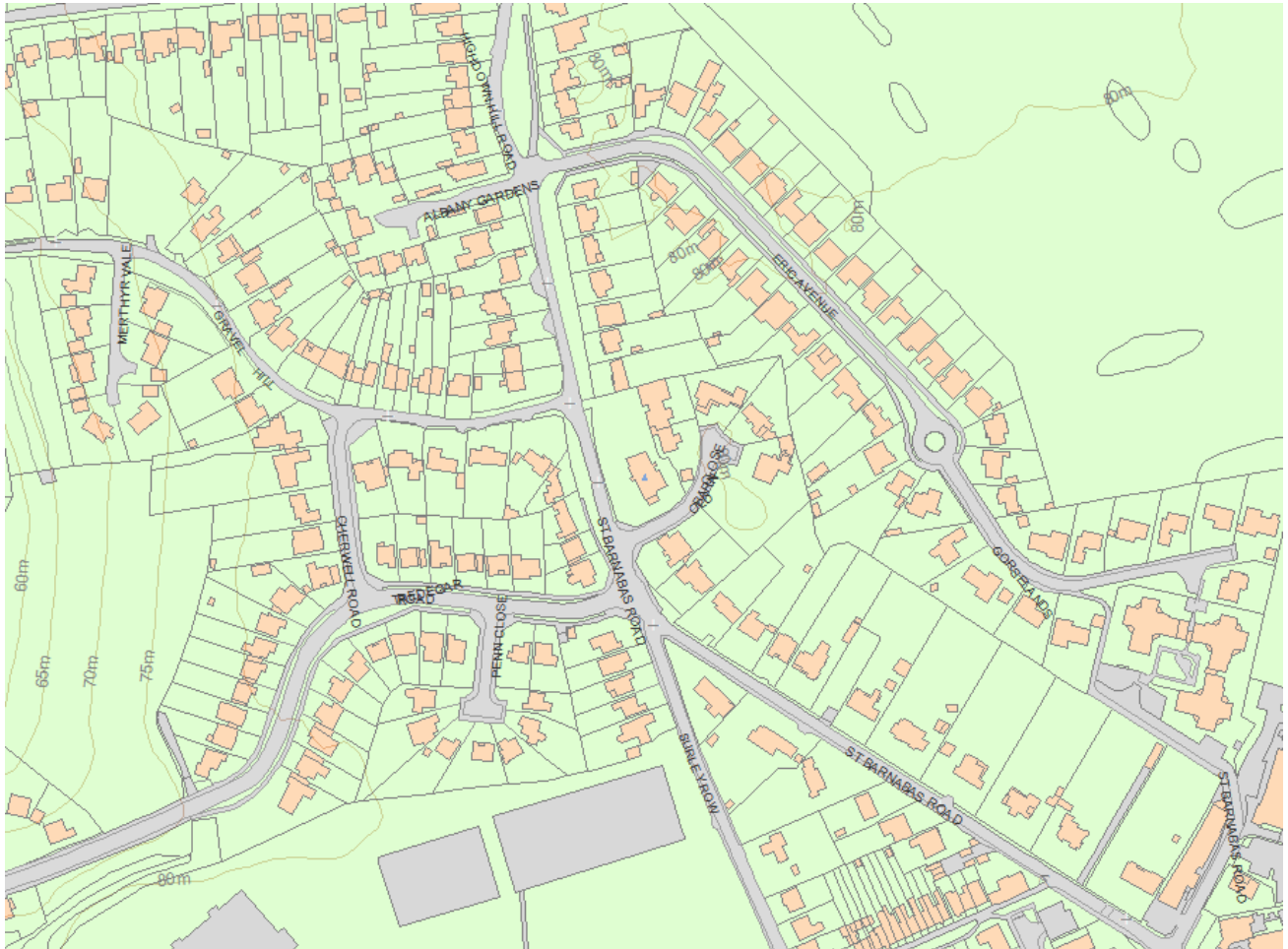
The contents of this record have been generated from a legacy data system.

Legacy System number: **39206**

Legacy System: **LBS**

Legal

This building is listed under the Planning (Listed Buildings and Conservation Areas) Act 1990 as amended for its special architectural or historic interest.



Map

This map is for quick reference purposes only and may not be to scale.
This copy shows the entry on 25-Jan-2022 at 11:13:32.

© Crown Copyright and database right 2022. All rights reserved. Ordnance Survey
Licence number 100024900. © British Crown and SeaZone Solutions Limited 2022. All
rights reserved. Licence number 102006.006.

Use of this data is subject to **Terms and Conditions**
(<https://historicengland.org.uk/terms/website-terms-conditions/>).

End of official list entry

Appendix B – How Traditionally Constructed Buildings Perform

Introduction

This appendix is a brief introduction providing a basic definition of what the traditional performance is for old buildings, in particular the fabric, and outlines the consequences of any changes to that performance. In light of the use of impervious materials (such as cement-based renders, mortars and plasters and modern paints) to modernise and repair the building it is important to appreciate how old buildings traditionally performed, and how changes to the traditional performance can have a detrimental effect upon the condition of older buildings.

The ‘Breathing’ Building

In general, the materials used in the construction and the traditional repair and maintenance of old buildings allowed moisture to enter and escape from the fabric by the process of evaporation. The building performed as a ‘breathing’ structure.

Traditional Materials

Traditionally older buildings were constructed and repaired using soft and permeable materials, such as lime and/or earth-based mortars, renders, plasters and limewash. These materials allowed the building to ‘breathe’ (refer to the illustration below).

The Removal & Replacement of Traditional Materials

Repairs have been carried out during the building’s recent history using modern paints and cement-based materials. These have replaced or been applied over traditional finishes and have changed the manner in which the building performs.

The Consequences of Changes in the Traditional Performance

The use of impervious materials can alter the traditional performance of a building from a ‘breathing’ structure to one that puts a greater reliance upon preventing water/moisture from entering the structure.

Where impervious materials are used, and moisture enters the fabric there will be an increased risk of moisture becoming trapped and/or displaced by impervious materials.

It is important to appreciate that where moisture becomes trapped in the construction and the fabric is subjected to prolonged dampness there is an increased risk of timber decay.

Diagram Illustrating the Traditional 'Breathing' Performance

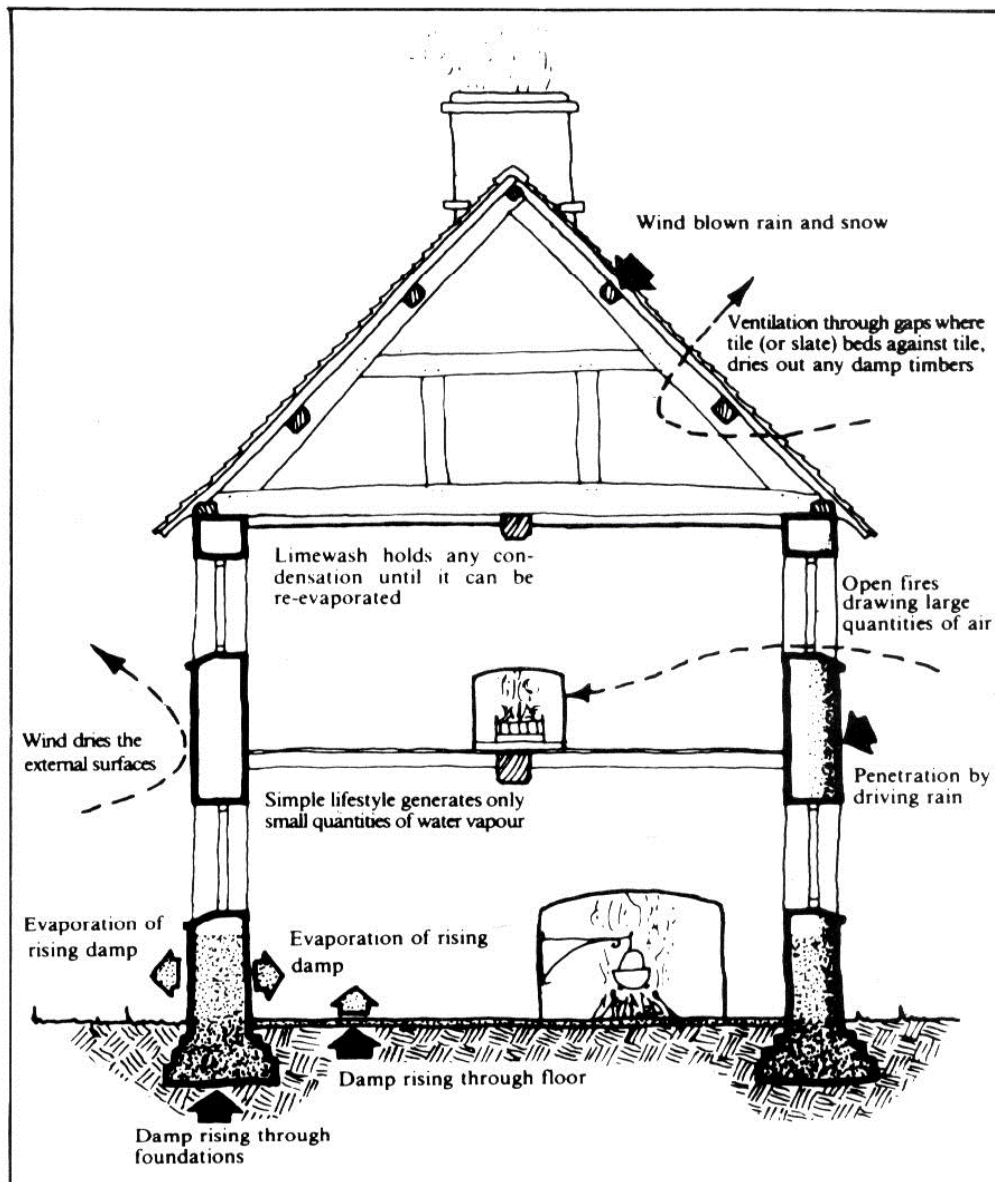


Diagram taken from The Control of Damp in Old Buildings, Technical Pamphlet 8, The Society for the Protection of Ancient Buildings (SPAB)

Summary of Traditional Performance

To summarise, the use of impervious materials is contributing to problems of damp at the subject property. It is therefore imperative that as much of the 'breathing' performance is reinstated, primarily by removing the impervious materials and that materials compatible with the traditional 'breathing' performance of the building are used in future programmes of repair and maintenance.

Materials that are impervious are generally incompatible with the traditional 'breathing' performance as they impair the evaporation of moisture. For this reason, the use of impervious materials, such as cement mortars, plasters, and modern paints, should be avoided wherever possible in the future repair and maintenance of the building.

Appendix C – The Qualities of Lime Based Materials

This is brief introduction to the qualities, and limitations, of lime-based materials. The majority of lime-based materials are soft, porous, and flexible. This is advantageous to traditional buildings because the materials will be compatible and consistent with the original fabric. The main qualities of these materials are that they allow for movement within the building and, most importantly, allow the building to 'breathe'. The permeability of lime-based materials reduces the amount of moisture that can become trapped within the building fabric as moisture is allowed to evaporate. Thereby alleviating the problems associated with dampness, condensation, and associated timber defects.

Modern cement-based renders, pointing and plasters usually have a hard finish and are impervious to moisture. Modern finishes, due to their hardness, are prone to cracking. Any moisture that has been drawn through even the finest of cracks will become trapped behind a hard, impermeable modern finish, as the moisture is unable to evaporate. This combination of hard and impermeable finishes can exacerbate any problems of dampness and/or timber defects within a building. The provision of modern masonry paints to either lime or cement finishes will also trap moisture within the construction, thereby compounding any problems suffered by the building.

Many modern materials and finishes claim or are perceived to be 'maintenance free'. This may apply to a certain extent to the material itself, but not to the remaining historic fabric. The historic fabric can suffer from the consequences of moisture being trapped within the construction as a result of the introduction of a 'maintenance free' product. It should be appreciated that remedying the consequences of applying modern materials to traditional buildings can actually be more expensive than carrying out regular and routine maintenance programmes.

Traditional materials require regular maintenance. The old adage 'to do a little, and often' sums up the basic needs and requirements of lime-based materials. The need for regular maintenance may seem to be expensive but will in fact reduce the problems that would otherwise be suffered in the long-term. This makes regular maintenance effective in terms of cost and in the performance of the building.

Lime plasters are naturally 'soft' and are therefore prone to mechanical and abrasive wear and tear. The porous nature of lime plasters and washes means that they do not provide a uniform finish. The appearance and colour of the lime finishes will actually change with the weather and will also reflect the levels of dampness/moisture content within the underlying fabric. This can make the building visually interesting and attractive; it will also assist in identifying areas that are prone to continued dampness, enabling targeted investigation to be implemented to the areas of concern.

This is a brief introductory note on the qualities and limitations of the lime-based materials that are recommended for use at the subject building. The use of these materials will assist in improving the general performance of the building and will also complement and enhance the visual presentation of the building.

Appendix D – Salt Contamination

Where moisture originates from the ground salts will be carried in solution. These ground salts will include hygroscopic salts, which can absorb moisture from the atmosphere, and will therefore contribute to the problems of dampness at the property. Salts, acids, and tars are common by-products of combustion and can be hygroscopic. These by-products can also be found around fireplaces and chimney breasts and where salts have been stored or used in a building.

The presence of hygroscopic salts adds to the complexity of remedying the problems of dampness, as they are difficult to eradicate and successfully address. The modern standard method of addressing salt contamination is by providing a hard cement render, usually with salt inhibiting additives, to the walls that act as a barrier to the salts and the passage of moisture. This prevents the discolouring and deterioration to the decorative finishes. However, adopting this approach will only cosmetically conceal the problem of dampness and salt contamination in the short-term. The use of impervious plasters/renders will only result in the damp and salts becoming displaced. For this reason, the use of impervious renders or plasters is not considered an acceptable solution in a traditional building that is dependent upon the evaporation of moisture.

It also needs to be appreciated that the cement renders/plasters will eventually become contaminated with salts and start to become discoloured and breakdown. This will also be the case with any replacement lime renders/plasters.

The advantage lime-based renders/plasters have over cement renders/plasters is that they will not cause moisture and salts to be displaced. However, both cement and lime renders and plasters will be prone to failure where there is a heavy concentration of salts. This may necessitate the use of 'sacrificial' plasters, which will attract some of the excess salts while the walls dry out, or the use of internal linings.

Care needs to be taken for the salts not to be drawn to the surface of the plasterwork, which can be caused by excessive heating of the building. Constant low-level background heating reduces the risks of salts being drawn to the surface. The control of the environment (reducing the amount of water vapour in the air, maximising the ventilation, and providing low level constant background heating) combined with the removal of contaminated plaster will contribute to reducing the problems caused by salts internally.

Appendix E – Implications of Listed Status

The following is a brief introductory summary of the basic implications of the listed status of the building.

Consent is normally required for demolition, in whole or in part, and for any works of alteration or extension which would affect its character as a building of special architectural or historic interest. It is a criminal offence to carry out such works without consent, which should be sought from the local planning authority. It is therefore essential that any work that affects the character of the building be only carried out after listed building consent has been obtained from the local planning authority.

Listed building controls apply to works, both externally and internally, that would affect a building's special interest, whether or not the particular feature concerned is specifically mentioned in the list description. This effectively means the whole of the building is listed, including any modern extensions and internal features that form an essential part of the character of the building.

The local planning authority have the right, without any time limit, to prosecute or issue a listed building enforcement notice, in respect of any unauthorised works carried out to the building. An enforcement notice can require the building to be brought back to its former state, or if that is not reasonably practicable or desirable, require other works specified to alleviate the effects of the unauthorised works. Listed building consent can be obtained for the works if it is considered that consent would have been granted for the works. If consent is granted, it is not retrospective, the works will only be authorised from the date of consent.

Local authorities have the powers to act where a historic building has deteriorated to the extent that its preservation may be at risk. These powers include repairs notices. If the local authority considers that a listed building is not being properly preserved, it may serve a repairs notice on the owner. Local authorities usually consider the use of repairs notices where protracted failure by an owner to keep a listed building in reasonable repair places the building at risk. This illustrates that there is an implied onus on the owner of the building to keep a listed building regularly maintained and repaired. It is therefore in the best interest of both the building and the owner to carry out repair and maintenance that keeps the building in reasonable repair.

It is generally accepted that the regular maintenance and repair are the key to the preservation of historic building. Modest expenditure on repairs can keep a building weather-tight, and routine maintenance can prevent much more expensive work becoming necessary at a later date.

If you intend to repair, maintain and/or alter the property it is essential to ensure that you are not going to implement works that will affect the special architectural or historic interest of the building. It is therefore imperative that you discuss any proposals that you may have with the local authority conservation officer and/or seek independent specialist professional advice before implementing any alterations or works.

Appendix F – Energy Efficiency: Implications of Relevant Legal & Regulatory Requirements

Energy efficiency and conservation of fuel and power of existing traditional buildings is controlled by Part L of the Building Regulations. Many improvements can be carried out, often at a relatively low cost, significantly enhancing the comfort of the building for its users, as well as providing savings on fuel bills.

Such improvements can also help in reducing greenhouse gas emissions. However, reducing carbon emissions from buildings is not just about heating and insulating the building fabric. Much can be achieved by changing behaviour, avoiding waste, using energy efficient controls and equipment, managing the building to its optimum performance - all of which is as relevant to older buildings as new ones.

For historic buildings and those of traditional (pre-1919) construction, an appropriate balance needs to be achieved between conservation requirements, and measures to improve energy efficiency, if lasting damage is to be avoided both to the building's character and significance, and its fabric. For example, it would be neither sustainable nor cost effective to replace a 200-year-old window, that is capable of repair and upgrading, with a new double-glazed alternative; and even less so if the new window were to have an anticipated lifespan of only 20 - 30 years, as many do. Depending on the circumstances, a good case might be made for well-designed and carefully installed draught-proofing or secondary glazing.

An informed approach can achieve significant energy efficiency improvements in most cases, although not always to the standards recommended in the Regulations. Achieving an informed *appropriate balance*, requires an understanding of both the Regulations, and the building's structure; particularly:

Understanding the energy efficiency requirements as set out in the **Approved Documents -for Part L of the Building Regulations**, which should be applied as far as is practicable up to the point at which alteration to the building's character, appearance and performance becomes unacceptable.

Understanding the point at which alteration to the building's character, appearance and performance will become unacceptable, depends on understanding the significance of the building, and how the building works as an environmental "system".

Once the building's significance, construction, and the way it performs have been fully understood, then the **appropriate balance** can be determined from a position of knowledge.

The Approved Documents make it clear that a reasonable compromise on the energy efficiency targets may be acceptable to preserve its **character and appearance** and to avoid technical risks.