JohnsonClark
building surveys and architecture

Property
Property
Structural Appraisal

Confidential to:
Name
Email:

Surveyor's Name
I R Johnson MRICS, Chartered Building Surveyor

Inspection Date
The property was inspected on

Our Reference
IRJ/AH/S1597/SA

Introduction to the Report
Instructions received are to carry out a Structural Appraisal of the property which were accepted and confirmed in my letter of the

The Royal Institution of Chartered Surveyors requires me to inform you that the report has been written for you to see and if you decide not to act on the advice in the report you do this at your own risk. The report is also confidential to yourself and may not be reproduced or passed on without the written prior approval of both surveyor and yourself.

Weather
The weather at the time of the inspection was cloudy.

1. INSPECTION GENERALLY

1.1. I would refer you to the limits of my inspection as outlined in the Survey Conditions of Engagement, in that no exploratory work has been conducted and that the inspection is not intended to be a Schedule of Condition itemising minor defects. There will be items of normal routine maintenance that will not be covered.

1.2. Whilst endeavours have been made to determine the condition of all concealed areas, the comments in the report can only be conclusive for those areas inspected. Unseen areas will not be inspected, and no destructive testing, x-rays or thermal images are carried out.

1.3. The service does not include a specific asbestos survey and falls outside *The Control of Asbestos Regulations 2012*. However, where the surveyor suspects the presence of asbestos-containing materials this will be noted for your information. If asbestos is highlighted then it is possible that there may be further occurrences in the property and you should discuss the need for a management or refurbishment/demolition asbestos survey with the surveyor.

1.4. The photographs included in the report sometimes do not clearly indicate the defect e.g. where cracking is only slight. In these instances, the photographs are included to indicate the area of damage rather than the actual damage in question.

1.5. For ease of identification all descriptions given in the report will be as though facing the front of the property, with rear left and right being described accordingly.

1.6. Where the expressions immediate, short term, medium term, long term, and very long term are used they generally mean the following:

Immediate	Within 1 year
Short term	Within the next 1 to 3 years
Medium term	Within the next 4 to 10 years
Long term	Within 11 to 20 years
Very long term	Over 20 years

1.7. Where relating to structural damage and cracking width the expressions negligible, very slight, slight, moderate, severe, and very severe are used they generally mean the following:

Category 0	Negligible/Hairline	< 0.1mm
Category 1	Fine	0.1mm - 1mm
Category 2	Slight	> 1mm but < 5mm
Category 3	Moderate	> 5mm but < 15mm
Category 4	Severe	> 15mm but < 25mm
Category 5	Very severe	> 25mm

1.8. In addition to the contract of this report we have included a number of appendices listed below:

Appendix A – Environment and Health Hazards
Appendix B – What To Do Next
Appendix C – Glossary of Building Terms
Appendix D – Maintenance Tips

These appendices should be read in conjunction with the main body of the report.

2. BRIEF HISTORY AND DESCRIPTION

2.1. The property is a Grade II listed corn water mill, believed to date to 1817.

Photograph 1

Photograph 2

Photograph 3

Photograph 4

Photograph 5

Photograph 6

Photograph 7

"Heritage Category: Listed Building
Grade: II
List Entry Number: 1178667
Date first listed: 24-Jun-1985
List Entry Name: EAST WITTON MILL
Statutory Address 1: EAST WITTON MILL, A6108

Details

SE 18 NE EAST WITTON TOWN A6108 (north side) 10/1 East Witton Mill

GV II

Corn watermill. Dated 'W + W 1817' on quoin. Coursed sandstone rubble, stone slate roof. 3 storeys and basement, 2 second-floor windows. Quoins. Openings have deep ashlar sills and lintels. Ground and first floors: 2-leaved board doors to left. On ground floor, to right, fixed-light window with glazing bars. Second floor: part-glazed, part-shuttered windows. Pigeoncote in gable. To left, lower 2-storey range at right angles, with 4-pane ground-floor window. Left end stack.

Roofless added lean-to wheelhouse on right. Interior: 1 pair of millstones on ground floor. Inscription refers to William Wellock, the miller in the late C18/early C19. Disused at time of re-survey.

Listing NGR: SE1540686040"

2.2. As a listed building, any alterations, extension or repairs, other than minor repairs on a like for like basis would require listed building consent.

2.3. The building is constructed over three storeys plus a basement and has a pigeon cote to the front gable apex.

2.4. I understand that the roof to the left side collapsed prior to listing of the property and has been replaced approximately 50 years ago.

2.5. There are three rooms on the ground and first floor and a single room on the second floor.

2.6. To the rear left, the ground and first-floor rooms contain a drying room and hopper.

2.7. The basement is a single room containing the drive and gear wheels.

2.8. To the rear left of the building there is an attached cart shed.

Photograph 8

2.9. The cart shed has been added at a later date, a previous window opening at first-floor level in the location of the cart shed roof having been built in.

2.10. The property is of traditional construction comprising load bearing masonry walls supporting timber framed pitched roofs.

3. EXAMINATION

External

3.1. Roofs

3.1.1. The roofs have been viewed from ground level with the aid of a pair of binoculars where appropriate.

3.1.2. The roofs are of duo-pitched construction with ridges running parallel and perpendicular to the front elevation.

3.1.3. The roofs to the mill are covered with natural sandstone slates laid to diminishing courses.

3.1.4. To the cart shed there are profiled clay tiles. To the right-side slope, there are eaves courses of Hardrow (concrete) slates.

Photograph 9

Photograph 10

3.1.5. The roofs have mortar bedded and pointed, angular stone ridges.

3.1.6. There are missing/broken slates to the following areas:

- 1No. to the front slope of the left-side roof
- 2No. to the rear slope of the left-side roof
- 1No. to the left-side slope of the main high level roof
- 2No. to the right-side slope of the main high level roof

Photograph 11

Photograph 12

Photograph 13

Photograph 14

Photograph 15

3.1.7. There are large gaps between some of the slates on the right-side slope which is due to poor workmanship, but has not resulted in water penetration.

Photograph 16

3.1.8. There is slight undulation to the high level roof but not of a significant nature.

3.1.9. The cart shed roof has one missing and four broken clay tiles to the left-side slope.

Photograph 17

3.1.10. There is erosion of mortar to the ridges which should be replaced and will involve lifting, re-bedding and re-pointing of the ridges.

Photograph 18

Photograph 19

3.1.11. One of the broken tiles is resulting in rainwater making its way onto the supporting timberwork below, causing decay.

Photograph 20

3.1.12. The higher level roof structure comprises three principal trusses supporting two rows of purlins to each roof slope, in turn supporting common rafters.

Photograph 21

Photograph 22

3.1.13. There is no underfelt beneath the slate covering.

3.1.14. The slates are held in place with oak pegs, many of which are snapped or missing and the roof will require stripping and re-covering in the medium term, prior to which isolated slate replacements are to be expected.

3.1.15. The roof timbers are primarily oak, although some replacement softwood rafters have been installed when the roof was last repaired or re-covered.

3.1.16. There is significant woodworm infestation to many of the timbers, however this does not appear to extend into the solid heartwood and the roof structure is considered to be in good condition for its age.

3.1.17. The structure over the left side of the building has been replaced approximately 50 years ago and comprises purlins supported between load bearing walls, in turn supporting common rafters over which there is a bitumen-based roofing underfelt.

Photograph 23

Photograph 24

3.1.18. Underfelts provide a secondary barrier to water penetration.

3.1.19. Bitumen underfelts used in construction prior to the early 1990s are likely to contain asbestos fibres although these are bound up in bitumen and risk to health is minimal.

3.1.20. There is an isolated hole in the underfelt.

Photograph 25

3.1.21. The roof structure is preservative treated softwood and noted to be in good condition.

3.1.22. The cart shed roof structure comprises a principal King post truss supporting three rows of purlins to each roof slope, in turn supporting common rafters.

Photograph 26

Photograph 27

Photograph 28

3.1.23. To the right-side slope, there is a bitumen-based roofing underfelt but to the left-side slope there is no underfelt.

3.1.24. The structure is softwood and there is significant woodworm infestation evident to some areas.

Photograph 29

3.1.25. When probed with a pen knife, sound heartwood was evident to the accessible parts of the truss.

3.1.26. One of the lower purlins to the right side has decayed where it is built into the rear wall of the Mill building and consequently a replacement purlin has been fixed alongside.

Photograph 30

3.1.27. There is a snapped rafter close to ridge level on the left-side slope which should have a new rafter fitted alongside.

Photograph 31

3.1.28. The truss is supported by the load bearing wall to the right side and to the left side, a cast iron post and timber eaves beam. The eaves beam has been replaced as part of previous repairs.

3.1.29. The post is suffering surface corrosion but, where visible, is seen to be sound.

3.1.30. The condition of the post below ground cannot be confirmed without exploratory work.

3.1.31. At mid-span of the eaves beam, there is a softwood packer which has significant woodworm infestation and should be replaced.

Photograph 32

3.1.32. To the front-left corner, there is water penetration from a broken tile (as previously reported) which will result in decay of the timber eaves beam.

3.1.33. A general overhaul of the roof coverings is required to replace defective slates and tiles.

3.1.34. There has originally been a roof over the water wheel but which has collapsed many years ago, requiring re-instatement.

Photograph 33

3.2. **Chimney Stacks and Flashings**

3.2.1. There is a single stone-built chimney stack to the left side which is built off the gable apex. The stack is of ashlar construction.

Photograph 34

Photograph 35

3.2.2. The stonework has visible deterioration and will require replacement in the medium-long term.

Photograph 36

3.2.3. Although re-pointing has been undertaken many years ago, cement mortar has been used. Cement mortar is unsuitable and lime mortar should be used for all future re-pointing.

3.2.4. There is erosion and cracking of some of the mortar joints and further re-pointing is required.

3.2.5. The stones will have deteriorated significantly internally due to flue gasses and the full condition cannot be confirmed.

3.2.6. If the flue is to be brought back into use, it will require lining and it is likely that the chimney stack may require re-building.

3.2.7. There are mortar flaunchings to the base of the stack.

3.2.8. Mortar flaunchings shrink and crack over time and will require periodic replacement.

3.2.9. At present, the flaunchings are seen to be in satisfactory condition.

3.2.10. At the abutment of the lower level roofs there are lead flashings which, where visible, appear to be in satisfactory condition.

3.3. Rainwater Goods

3.3.1. The weather remained dry during the survey and therefore the rainwater goods were not seen under operational conditions.

3.3.2. The roof slopes discharge to eaves gutters which are half-round cast iron, supported on rise and fall brackets to the Mill building and which in turn discharge to cast iron rainwater downpipes.

3.3.3. The gutters and downpipes are in reasonable condition but require re-decoration.

3.3.4. Traditionally, downpipe joints are caulked and I would recommend that this is undertaken.

3.3.5. To the cart shed, there are cast iron gutters supported on fascia brackets to the left side and plastic gutters supported on rise and fall brackets to the right side.

3.3.6. I understand that the plastic gutters have been fitted prior to the property being listed.

3.3.7. The gutter does not extend the full length of the roof, which will result in water missing the gutter altogether.

Photograph 37

3.3.8. It is also likely that water will oversail and miss the gutter during periods of heavy rainfall, given the significant projection of the eaves slates.

3.3.9. The gutters should be altered/adjusted and would ideally be replaced with cast ironware.

3.3.10. Rainwater downpipes discharge directly onto the ground. This results in localised wetting and can lead to problems of localised subsidence, however there were no such problems evident.

3.3.11. There is some vegetation growing in the gutters which will require periodically cleaning out.

Photograph 38

3.3.12. Inadequate disposal of rainwater can cause serious defects within a building, including damp, timber decay and structural movement. It is therefore important that rainwater goods are kept in a well-maintained condition. In particular, it is recommended that gutters are kept clear and cleaned of any leaves, silt and rubbish on a regular basis. In addition, joints and brackets should be checked periodically.

3.4. External Walls

3.4.1. Our inspection of the external surfaces of the main walls was made from ground level and from within readily accessible windows.

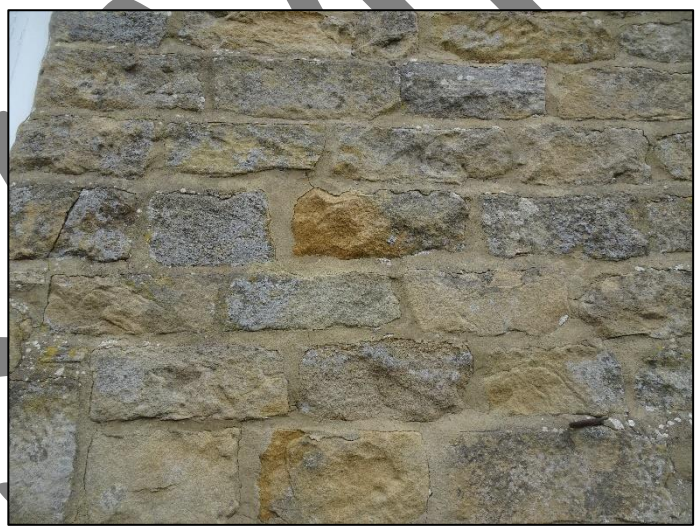
3.4.2. The foundations to the property have not been exposed; therefore you must accept the risk of unseen defects. However, there was no evidence to those parts readily visible that would indicate problems with the foundations, nor where there any above ground level defects that would normally have an adverse effect on the foundations.

3.4.3. The external walls are of solid stone masonry construction, approximately 500-600mmm thick.

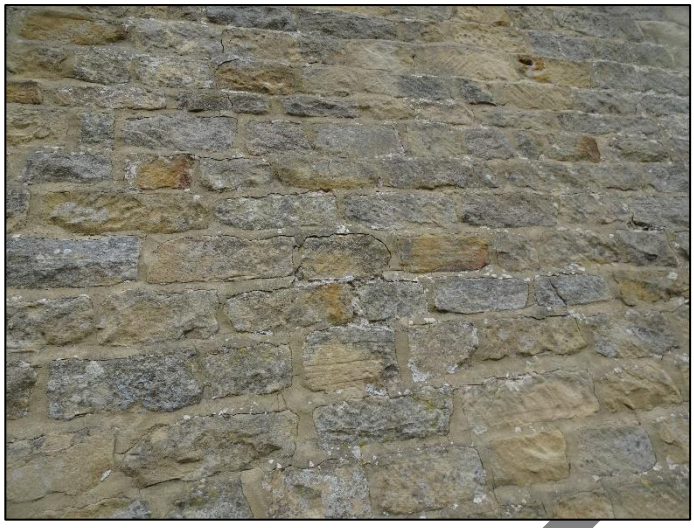
3.4.4. The walls will comprise two leafs of stone masonry with a mortar and rubble filled heart, built off footing stones at relatively shallow depth. Consequently, these types of wall are more prone to changes in the below ground conditions leading to problems of settlement/subsidence. There are no such problems evident to the walls.

3.4.5. There are stone heads and cills to the window and door openings.

3.4.6. The front elevation has been re-pointed with a cement-based mortar although the old lime joints have not been raked out prior to re-pointing, resulting in significant areas of cracked and loose mortar.



Photograph 39



Photograph 40

Photograph 41

3.4.7. Cement-based mortars are hard and impervious and can lead to or exacerbate dampness problems and erosion of stonework.

3.4.8. The cement mortar should be removed and replaced with traditional lime mortar.

Photograph 42

Photograph 43

Photograph 44

3.4.9. There is general erosion of mortar pointing and the building should be re-pointed with a traditional lime mortar as part of a programme of future repairs and maintenance.

3.4.10. There are numerous openings to the rear elevation which have oak lintels externally.

Photograph 45

Photograph 46

3.4.11. Although the oak is aged and deteriorating, it still appears to be structurally sound.

3.4.12. Where the opening to the rear of the left-side, first-floor room (drying/hopper) has been built in, the built-in stonework has not been tied into the reveals although there is no evidence of any ongoing problems.

3.4.13. An opening in the basement has been previously built in.

Photograph 47

3.4.14. There are fractured stone heads to window openings in the first floor in the right-side elevation which is where the principal Mill workings are located and most likely due to vibration.

Photograph 48

Photograph 49

3.4.15. There are fractured heads to the ground-floor openings in the front elevation.

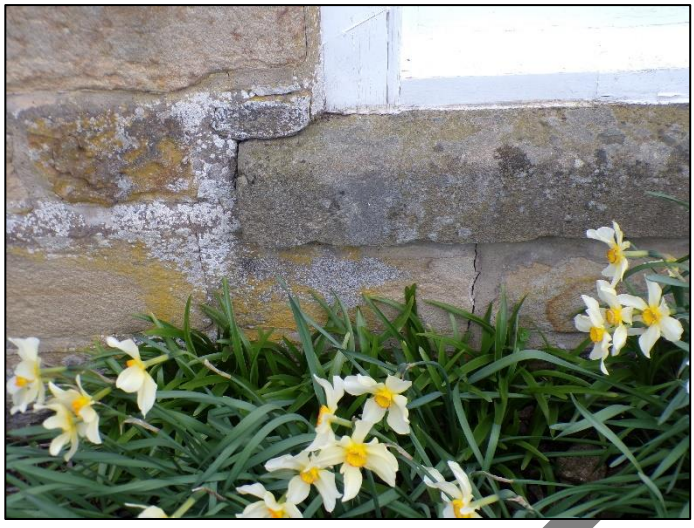
Photograph 50

Photograph 51

3.4.16. The right-side opening has a slip cill which has also fractured.

3.4.17. Whilst there is no cracking or displacement of masonry above, the fractured heads should be repaired or replaced.

3.4.18. Isolated cracking is visible below the left-side opening which has opened since re-pointing, but is considered to be of a minor nature and not of significant concern.



Photograph 52

3.4.19. To the rear, the ground-floor window head has virtually no end bearing, being supported by the timber window frame. Repairs/remedial works are required which would have to be agreed with the local authority conservation officer/Historic England.

Photograph 53

3.4.20. When sighted through, there is distortion evident to the left-side gable and rear wall of the two-storey part of the building.

Photograph 54

Photograph 55

3.4.21. Tie bars have been fitted at first-floor level and above the window head height in the left-side gable to provide lateral restraint.

Photograph 56

Photograph 57

3.4.22. Internally, there is a stone hopper which, especially when it was full of corn, will have exerted significant outward thrust on the walls resulting in the bulging, which has occurred over a long period of time.

3.4.23. Cracks are evident to the rear elevation which have been previously re-pointed with a cement-based mortar but since re-opened.

3.4.24. A structural engineer will be required to design a suitable method of support for the stone hopper to prevent further outward movement.

3.4.25. There are internal timber backing lintels to the window heads and cills which have woodworm evident, although when probed with a knife, appeared to be relatively sound and replacement is not essential.

3.4.26. There is a first-floor door opening to the front of the left-side elevation which has been built up to form a window opening.

3.4.27. The bearings to the head are poor to the left side and require making good.

Photograph 58

3.4.28. The wall tops to the part of the building containing the water wheel are loose, requiring consolidating/re-building.

Photograph 59

3.4.29. Internally to the basement, there is bowing and bulging of the left-side wall which is a retaining wall.

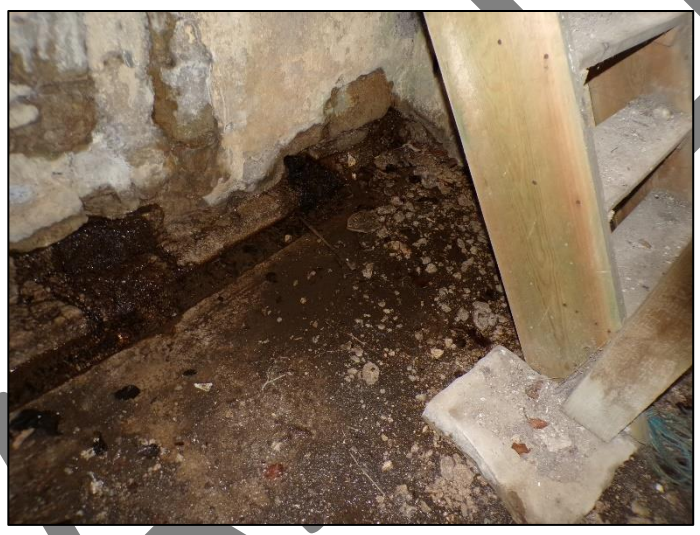
Photograph 60

3.4.30. No remedial works are required at present but cannot be ruled out in the future, especially if the building is converted to habitable use.

3.4.31. There appears to be a built-in door opening to the rear-left corner, although this may be a straight joint in the stonework.

Photograph 61

3.4.32. Water penetration is a problem to the front and a channel has been cut to discharge water into the water wheel area.



Photograph 62

3.4.33. It will be necessary to intercept and divert the water externally.

3.4.34. Ground levels to much of the perimeter of the building appear to have been raised over time and this is resulting in damp ingress. Ideally the ground levels would be lowered.

3.4.35. The walls have originally had a lime plaster finish internally, although much of this is missing and remaining areas are cracked, loose and friable.

Photograph 63

Photograph 64

3.4.36. There is a substantial gap between the internal cross wall and left-side elevation as a result of outward movement of the external wall although there does not appear to have been any progression since the tie bars were installed and the roof structure replaced.

Photograph 65

Photograph 66

Photograph 67

Photograph 68

3.4.37. To the internal side of the external door and window openings and to the internal door openings, there are timber lintels which have woodworm infestation but when probed with a pen knife, appeared to be reasonably sound.

Photograph 69

Photograph 70

3.4.38. The masonry should be tied into the external wall, particularly if the building is to be converted.

3.4.39. Some of the lintels have deflected but are unlikely to deflect any further.

Photograph 71

3.4.40. To the front-left, first-floor room, concrete lintels have been installed at the time of re-roofing, the lower purlin being supported above the door.

Photograph 72

3.5. Floors

3.5.1. The upper floors are of suspended timber construction, a mixture of oak and softwood.

3.5.2. To the front left, the first floorboards have been replaced and one of the joists.

3.5.3. To the front right, a section of the first floor has been replaced.

3.5.4. There is woodworm infestation to the floors which have been subject to replacement of isolated sections of boards.

3.5.5. There are holes remaining and significantly deteriorated boards to some areas, requiring selective replacement or alternatively the floors could be overboarded with plywood.

3.5.6. For the purposes of conversion to a dwelling, it is inevitable that floorboards would have to be replaced and some of the joists strengthened/replaced.

3.5.7. The ground floor to the right side is suspended timber.

Photograph 73

3.5.8. The base to the posts supporting the floor is significantly decayed and will require repair involving replacement of the lower sections.

Photograph 74

Photograph 75

3.5.9. To the right side, the timber beams are deteriorated to such an extent that replacement will be necessary.

Photograph 76

Photograph 77

Photograph 78

3.5.10. To the front-right corner, a steel beam and timber posts have been installed to provide support to the failed ends of the principal beams.

Photograph 79

Photograph 80

3.5.11. A substantial area of the right-side, ground floor has been overboarded with plywood due to deterioration of floorboards.

Photograph 81

3.5.12. There are timber stairs between each storey. These have significant woodworm and wear between the upper floors and should be replaced/strengthened, by agreement with the local conservation officer and Historic England.

Photograph 82

Photograph 83

Photograph 84

3.5.13. To the front left, the floor is solid concrete or limecrete and seen to be free from significant cracking or settlement, where visible.

3.5.14. The cart shed floor is laid to stone flags which was predominantly covered and could not be inspected.

3.5.15. The basement floor is laid to concrete which I anticipate to have been undertaken in the later 20th Century.

Photograph 85

3.5.16. The floor is uneven and I anticipate to have been laid over an earlier floor.

3.5.17. Ideally, the floor would be reinstated at its original level if this can be identified/confirmed.

3.5.18. The hopper/drying room floor could not be inspected.

3.5.19. There are brick columns and arches supporting stone joists and the hopper is formed with ashlar stone slabs.

Photograph 86

Photograph 87

Photograph 88

Photograph 89

3.5.20. Some of the stone slabs and stone joists have collapsed or been removed.

Photograph 90

3.5.21. There is debris in the hopper which requires cleaning out.

3.5.22. Brickwork is deteriorating and some of the columns lean out of plumb.

3.5.23. Some of the stone joists are broken and missing and extensive repairs are required.

4. CONCLUSION AND RECOMMENDATIONS

4.1. Within the scope of the examination undertaken to this property in that it has been restricted to a visual inspection only of elements presenting at the time of the inspection and no exploratory/disruptive work has been conducted, I conclude my findings and recommendations as follows.

4.2. The property is a Grade II listed former watermill, believed to be in the region of 200-250 years old.

4.3. You should be aware that any alterations, extensions, or repairs other than repairs of a minor nature on a like for like basis will require listed building consent.

4.4. The roof coverings are in reasonable condition, however there are isolated broken slates and tiles requiring replacement.

4.5. The high level roof has numerous broken oak pegs and slate slippages will become more frequent in the medium to long term, until the roof is stripped and re-covered.

4.6. The roof structure is considered to be sound enough for retention.

4.7. The cart shed roof has had previous repairs undertaken and further isolated repairs are required.

4.8. The external walls have suffered bowing, bulging and distortion to the left-side, two-storey gable and rear left.

4.9. Tie bars have been installed to prevent further outward movement of the gable which appears to have provided stabilisation.

4.10. The rear wall has had cracking pointed up many years ago, although this has re-opened and which I suspect is due to the outward thrust of the heavy stone hopper.

4.11. Whilst the problem does not appear to be progressing at a significant rate, in the long term, remedial works will be necessary.

4.12. Fractured window heads should be repaired, if possible, or alternatively replaced and poor bearings made good.

4.13. First floors require replacement of relatively isolated areas of boarding and some of the joists in particular to the front-right corner of the first floor.

4.14. An alternative measure, if the building is not to be converted, could be to overboard with plywood.

4.15. Some of the large beams supporting the Mill workings are significantly decayed.

4.16. Remedial strengthening has been undertaken to the beam ends at the front of the property however further beams require structural engineer designed repairs or replacement.

4.17. The hopper requires repairs/re-building to the supporting brickwork columns and I would recommend that a suspended timber floor is installed above the existing stone joists.

4.18. Whilst a priority is given in the table below, repairs which may not be urgent as part of ongoing maintenance for the building would require undertaking as part of conversion into habitable use, subject to listed building consent being granted.

4.19. Replacement of broken tiles and re-pointing of the ridges would not, in my opinion, require listed building consent, nor would repairs or overboarding of the floors, so long as replacement of defective floor timbers/boards is kept to only essential areas.

4.20. I have identified various defects within the main body of the report and below set out a schedule of the most significant along with approximate budget repair costings, exclusive of VAT, which may be applicable.

4.21. This takes no account of any defects which may currently be hidden but become apparent during building works and exclude further professional fees which may be required.

4.22. The costs are for budget purposes only and prior to purchase of the property you should obtain competitive quotations. Contractors reviewing the schedule should advise on any enabling works which may be necessary, as these have not been included within my costs.

4.23. Unless indicated otherwise, the costs do not allow for any scaffolding required to undertake repairs.

Ref:	Repair	Cost (£)	Priority
1.	Overhaul roofs to replace defective slates and tiles and lift, re-bed and re-point ridges to cart shed roof.	600-700	1-2
2.	Strip and re-cover high level roof and cart shed roof.	15,000-20,000 (incl. scaffold)	3
3.	Repairs to cart shed roof structure.	250-350	2
4.	Re-instate roof over water wheel.	7,000-9,000	2-3
5.	Re-point eroded mortar joints to chimney stack.	150-200	2
6.	Caulk cast iron pip joints.	150-200	3
7.	Alter/adjust plastic gutters to cart shed.	150-200	2
8.	Re-point front elevation with lime mortar.	8,000-10,000	2-3
9.	Make good end bearing to left-side, first-floor window head.	200-300	2
10.	Repairs/strengthening of rear-left wall (hopper) and window head.	4,000-5,000	2
11.	Tie internal dividing wall into left-side gable wall.	1,500-2,000	2-3
12.	Consolidate/re-build wall tops to water wheel house.	1,800-2,000 (incl. scaffold)	2
13.	Overboard timber floors to right side with plywood.	3,000-4,000	1-2
14.	Replace badly decayed/woodworm infested floorboards and joists as necessary.	4,000-5,000	2
15.	Repairs to hopper/drying room floor.	6,000-8,000+	2
16.	Repair/replace decayed timber beams/posts to ground-floor structure.	5,000-7,000	1-2
17.	Repair/strengthen/replace stairs.	3,000-4,000	2

PRIORITY - How important I feel the repair is:-

1. **Urgent** – Needs immediate attention.
2. **Essential** – Should be done.
3. **Desirable** – Needs to be done but could be left.

4.24. Costs for restoration and conversion of the building into a dwelling would be anticipated in the region of £1,000,000-£1,200,000 plus VAT.

4.25. Within Appendix C (What To Do Now) we have provided additional information on obtaining quotes for any remedial/repair works and instructing further investigation that may have been recommended within the report.

4.26. Please note that the report is confidential to the Client and may not be reproduced or passed on without the written prior approval of both Surveyor and Client.

4.27. Following this report, if you require architectural services on the property, we can offer a scope of services that covers an initial measured survey with existing drawings, a design development stage, a technical compliance stage, tendering of the works and contract administration at the construction stages. We can include sourcing and co-ordinating the input of any other consultants required during the process and assistance in obtaining the necessary planning, listed building and building regulation approvals. We would be happy to review your specific requirements and provide a fee proposal for your consideration.

4.28. It is important that you fully understand the content of this report and its limitations. As part of our service, we would encourage you to contact us if you require clarification or wish to discuss any aspect of this report.

I R Johnson MRICS
Chartered Building Surveyor
For JohnsonClark

Mobile No. 07970 935088
e-mail: ian@johnsonclark.co.uk

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Appendix A
Environment and Health Hazards

Below we have provided advice regarding certain issues of an environmental nature. The potential issues outlined below should not be considered an exhaustive list of matters to be considered.

Flooding risk

We have not undertaken detailed investigations into the potential for flooding of the land on which the property lies. However, a search on the website *www.environment-agency.gov.uk*, of the Environment Agency will provide information regarding the potential for flooding on any site.

Tree proximity

The proximity of trees to buildings can give rise to concern because structural damage can be caused by root systems growing around, under and sometimes through foundations and subterranean walls. The risk of damage caused by tree roots depends on:

- the proximity of the tree to the building concerned
- the height, age and species of tree
- the design and depth of a building's foundations
- the type of sub-soil

If there are trees near the building. The growth of these trees should be monitored and, if necessary, controlled in due course.

Radon risk

Radon is a radioactive gas that occurs naturally in the ground. It occurs when uranium decays. Uranium is found in small quantities in all soil and rocks. Decaying uranium turns into radium and when radium, in turn, decays, it becomes radon. Uranium can also be found in building materials derived from the rocks.

Radon rises through cracks and fissures in the ground into the air. Outdoors, radon is diluted and the risk it poses is negligible. Problems occur when it enters enclosed spaces, such as a building, where concentration levels can build up. When this happens, it can cause a significant health hazard to the occupants of a building by increasing the risk of lung cancer.

Radon is everywhere, but usually in insignificant quantities. General technical information on Radon can be obtained from Public Health England. Their website address is https://www.gov.uk/government/organisations/public-health-england

Following the legal searches, if Radon, as an environmental hazard, is something that you are particularly sensitive to, further investigations and, if necessary, testing should be considered for an assessment of the site's exposure.

Electromagnetic fields and microwave exposure

There has been concern that electromagnetic fields from both natural and artificial sources can cause a wide range of illnesses such as blackouts, insomnia and headaches to depression, allergies and cancer. Artificial sources commonly comprise overhead or subterranean high voltage electrical power cables.

It is suggested that the electrical discharges from these high voltage cables upset the balance of minute electrical impulses employed by the human body to regulate itself in much the same way as television and radio signals can be disrupted.

Controversy and uncertainty prevail with regard to this matter; no strong evidence that is generally accepted to be conclusive has been developed to prove or disprove this alleged hazard. More information is available from the National Radiological Protection Board's website. You should be aware that the presence of power cabling in the vicinity of a building can affect its value and liquidity in addition to the health of those occupying the property.

We have not undertaken any separate inquiries with the relevant statutory authority as part of this inspection.

Invasive vegetation

The existence of any Knotweed or Hogweed around the property many have been highlighted with this report. However, we have not carried out a thorough inspection of the whole garden.

Japanese Knotweed was introduced into the UK in the 19th century. It grows vigorously and can cover large areas to the exclusion of most other plant species. It has been known to grow through bitumen macadam, house floors and sometimes through foundations.

Wood Boring Insects (Woodworm)

We have not undertaken a detailed investigation into the potential for Woodworm as this would cause for intrusive works to be carried out, however we will highlight if presenting at the time of the inspection any evidence of an active infestation.

Woodworm may manifest itself in a number of varieties ranging from 3mm in size to 25mm. Eggs are laid on or in the timber and the larvae that hatch feed and bore into the timber which consequently results in weakening of timbers and a risk to the structural integrity of the property. Treatment of active woodworm involves applying insecticides to the timbers. In extreme cases where the timbers structural integrity has been compromised by the attack, replacement may be the only solution.

Fungal Decay (Dry Rot & Wet Rot)

Moist and damp conditions provide an ideal environment for fungal attack. In cases where the moisture content is over 20% this is classified as 'dry rot'. Fine grey strands of fungus spread through wood and other materials developing into sporophores which give off spores which in turn spread the fungus further. Timber suffering from dry rot becomes very dry and brittle and begins to fracture to such an extent that it can be broken and crumble by hand. When the moisture content is higher than 40% to 50% this is classified as 'wet rot'. The presence of wet rot in timber is recognised by a dark brown staining colour and splitting or longitudinal cracking.

Treatment of fungal decay is initially to remove the source of the dampness which is enabling the fungus to 'feed' and develop. Exposure works will then be

necessary to determine the full extent of the damage caused. Following any repairs or replacement works it will be necessary to treat the timbers with an approved fungicide to safeguard against recurrence.

Appendix B
What To Do Now

If the surveyor is concerned about the condition of a hidden part of the building, could only see part of a defect or does not have the specialist knowledge to assess part of the property fully, the surveyor may have recommended that further investigations should be carried out to discover the true extent of the problem. You should be mindful that the investigations may highlight additional or more extensive defects than presenting at the time of the inspection.

The cost of remedial works and/or repairs may influence the amount you are prepared to pay for the property. Before you make a legal commitment to buy the property, you should instruct further investigations and obtain quotations for all the remedial works and/or repairs.

Getting quotations

You should get at least two quotations from experienced contractors who are properly insured. You should also:

- ask them for references from people they have worked for.
- Ensure they have the skills needed to carry out the works.
- describe in writing exactly what you will want them to do.
  (this may be outlined within the report, be a result of further investigation or something the contactor can advise on)
- get the contractors to put the quotations in writing.

Some repairs will need contractors with specialist skills and who are members of regulated organisations (for example, electricians, gas engineers, plumbers and so on). Some work may also need you to get Building Regulations permission or planning permission from your local authority.

Who you should use for these further investigations

You should ask an appropriately qualified person, though it is not possible to tell you which one. Specialists belonging to different types of organisations will be able to do this. For example, qualified electricians can belong to five different government approved schemes. If you want further advice, please contact the surveyor.

What the further investigations will involve

This will depend on the type of problem, but to do this properly, parts of the home may have to be disturbed and so you should discuss this matter with the current owner. In some cases, the cost of investigation may be high.

Appendix C
Glossary of Building Terms

A

Air Brick A perforated brick usually to be found in external walls to provide - ventilation to ground floor joists.

Alcove A room access often found to both sides of a chimney breast.

Angle Irons Wrought iron right angle shaped bars.

Apron or Apron Flashing Traditionally of lead and correctly used to describe a strip of lead built into a wall and dressed up the wall, eg where a flat roof abuts a vertical wall.

Arch A curved structure built to distribute weight over an opening in a wall.

Architrave Traditionally a moulded wood strip around the edge of a door, covering the joint of door frame and plaster or other wall finish.

Arris The sharp external edge where two surfaces meet at a point.

Ashlar Stone walls built with cut blocks of stone.

B

Baluster A vertical pillar supporting the hand rail of a staircase; may be carved or plain.

Balustrade A row of balusters joined to a horizontal rail at, for example, the edge of a landing.

Barge Board The board placed along the verge of a roof at the gable end.

Bat A cut brick, either half bat or three-quarter bat.

Batten Timber fillets to which slates and tiles are nailed or fixed.

Benchings Originally called bolstering - this refers to the cement finish to the space between open pipes where they join in a manhole.

Birdsmouth (joint) The notch cut in the end of a rafter where it joins the wall plate.

Bond The placing of bricks in mortar to form a wall - English bond, Flemish bond, garden wall bond.

Bottom Rail The lowest horizontal part of a door.

Box Girder A hollow girder.

Boxing A term for the recess into which internal window shutters are folded.

Braced Door A type of door with diagonal supported braces.

Breeze (as in breeze block) Ashes, coke or cinders formed into a building block used for partition walls or inner skins of cavity walls.

Brick Noggin Brickwork built into a timber framework.

Buttress A brick or stone support to a wall designed to resist thrust movement and give added stability.

C

Cames The lead bars in leaded lights

Cased Frame Adjoining sash windows with a cased frame in the middle for the weights.

Casement A window hinged at one end and designed to open inwards or outwards.

Ceiling Joist Joist which supports a ceiling.

Cement Fillet A cement joint, generally used to describe cement joints between roof slopes and walls.

Cesspool A construction to hold sewage and foul waste.

Chair Rail The top of the dado fixed about 3ft above ground level.

Chamfer Where the edge or arris of adjoining walls has been cut to form a flat surface.

Chase A cut in plaster, brickwork, etc, to receive cables, pipes, etc.

Chimney Breast That part of the chimney flue that projects into a room.

Chimney Stack That part of the chimney built above roof level.

Close End (or Stopped End) The end of a gutter.

Closer As in Queen closer, is a brick cut along its horizontal length; or as in King closer, with a cut corner.

Cogging A notch in a wall plate for joist.

Collar A horizontal timber joining rafters, the cross piece in a single frame.

Coping Brick or stonework on top of a wall.

Corbelling Bricks projecting in step from a wall, often found at the top of a wall immediately below the roof.

Cornice Ornamental plaster around the joint of wall and ceiling.

Couple Roof A roof without a collar.

Coursed Rubble Squared stone laid in course, but with courses of different sizes.

Cowl A movable cap to the chimney or vent pipe which moves in the wind to keep the opening away from the direction of the wind.

Creasing Projecting courses of tiles at the top of a wall or chimney stack to stop rain from running down the face of the wall.

Crown The top of an archway.

Cupola A glazed structure in the shape of a lantern found at the top of a dome.

D

Dado The lower 3ft or so of wall where finished in timber, providing protection to the wall and covering the brickwork most likely to be effected by rising damp.

Damp-proof Course (dpc) An impervious membrane laid about two brick courses above ground level to prevent damp from rising.

Dormer Window A window formed in a roof slope which projects from the slope.

Double-hung Sash Window A window where the upper and lower sashes are hung on cords or slides and can move up and down.

Dowel Usually used to describe a timber pin holding jointed section of timber together.

Dress, Dressing Terms used by plumbers when working with lead. Dressed lead has been beaten into shape.

E

Ear part of cast-iron or lead rainwater goods used for fixing pipes to walls.

Eaves The lower edge of a roof near the gutter.

English Bond A brick wall with alternate courses of headers and stretchers.

English Garden Wall Bond Brickwork constructed with three courses of stretchers and one of headers.

Entablature The finish at the top of a column.

Escutcheon The metal plate covering the key hole.

Espagnolette Bolt Typically found on continental windows were, when turned the casement is bolted at top and bottom.

F

Fanlight A light (window) over a door or casement.

Fascia The board to which the gutters are fixed.

Fillet A small strip of wood, slate, cement.

Finial An ornament, often of terracotta, fixed at the gable end of the ridge.

Fire Bricks Special bricks for fireplaces designed to withstand intense heat.

Firring Tapered pieces of timber laid on joists of flat roofs to provide an adequate fall to gutters.

Fish Plates Iron plates for joining large beams.

Flag A large paving stone - as in flagstone.

Flank Wall A side wall.

Flashings Usually made of lead and fixed to provide a waterproof protection at the joint of flat roofs and adjoining walls between pitched roofs and walls or around chimneys.

Flat A flat roof.

Flaunching The cement work around chimney pots.

Flemish Bond Brickwork with alternate headers and stretchers in each course.

Footings A term sometimes used for foundations, effectively where the brick wall widens out at its base on top of the foundations.

Framed and Braced Door A door made up of rails, styles, battens and braces.

French Casement (or Door) A pair of sashes the height of a door and hinged to serve as a door and window. Used to describe any casement door from living room into garden.

Fresco Painting done on plaster.

Frog The depression in the top of a brick.

Furniture In building terms - the handles, knobs, locks etc, fitted to doors, windows and fitted or built-in cupboards.

G

Gable As in gable end, is the triangular part of a wall under a roof end.

Gauged Arch Where the bricks forming the arch are cut to the radial form.

Gauged Brickwork Bricks rubbed to an exact size and laid with very fine joints.

Girder A large beam made from iron or steel.

Granolithic A floor finish of crushed stone or aggregate.

Grout Used for filling the joints in wall tiles.

H

Half Timbered Timber framed walls filled with brick or stone and frequently plastered.

Header The end of a brick.

Herring-bone Bond Bricks bonded in diagonal lines.

Herring-bone Strutting Pieces of wood nailed between joists to reduce movement.

Hip The angle where two roof plans meet at a ridge.

Hopperhead A funnel of hopper-shaped head to the top of the rainwater pipes to

collect rainwater and waste from one or more pipes.

I

Interlocking Tiles Tiles which lock together to form a water tight roof without the need for lapping.

Invert of Invert Levels The lowest part of a drain.

J

Jamb The side of a door or window.

Joists Timbers built into or hung from walls to provide support for floors or fixing for ceiling or both.

K

Key A surface can be roughened to form as a key, eg for rendering purposes. It also refers in lath and plaster work to the early coats which are forced through the gaps in the laths to form a key.

Keystone The centre stone or an arch.

Kingpost The central post of a timber roof truss.

Knotting A liquid applied to knots in woodwork prior to painting. Knots not treated will always show through.

L

Lantern Light A roof light (window) constructed like a lantern with opening or fixed glazing.

Lap To overlap a course of slates.

Lean-to A structure, the sloping roof which abuts a higher wall.

Ledged and Braced Door A door which is strengthened with diagonal braces.

Ledged Door A door where vertical boards are fixed to ledges only.

Linings The wood finish to door and window jambs.

Lintel The horizontal beam over a window or door opening.

M

Mansard Roof A roof made with two slopes - effectively provides a top floor of usable space within a roof structure.

Mastic A generic term for any sealant used in the building process, eg for sealing the joint around window openings.

Mezzanine A floor between the ground floor and first floor.

Mullion An upright division of a window.

N

Newel The post at the bottom and top of a stair to which the handrail is fixed.

North Light Generally refers to factory roof construction which includes a glazed slope facing north.

Nosing The rounded projecting edge of a step in a staircase.

O

Oriel Window A window projecting from an upper floor.

Oversailing Course A projecting course of brickwork.

P

Padstone A stone laid under the end of and RSJ to distribute weight.

Panelled Door A door which is inset with panels - these may be glazed.

Pantile A curved roofing tile which hooks over adjoining tiles.

Parapet As in parapet wall - the external wall is built up above the eaves with a gutter formed behind it, or mansard constructed behind it.

Pargetting Plaster finish to the inside of a ney flue.

Parquet Floor Small strips of wood usually laid on a solid floor to from a pattern.

Parting Bead The timber fillet that separates sliding sashes in the window frame.

Parting Slip The timber fillet inside the frame of a sash window to keep the weights of the two sashes apart.

Partition A wall dividing internal space can be stud partition, ie non-loadbearing.

Party Wall The wall which separates, but is shared by adjoining properties.

Pitch The slope of the roof, technically the ratio of span to height.

Plinth The projecting base of a wall.

Pointing To point is to fill the joints of brickwork with mortar. A process carried out while laying the bricks or at a later stage.

Purlins The horizontal roof member on which the rafters rest.

Q

Quoin Bricks or stones used at corners of walls.

R

Rafters The roof timbers to which felt and battens are fixed.

Rail A horizontal part of a door frame or window.

Raking Bond Diagonal of herring-bone brick bond.

Random Rubble Stone walls built without courses.

Rebate A set-back in timber, stone, etc.

Relieving Arch An arch over a lintel.

Retaining Wall A wall built to hold back or retain a bank of soil.

Ridge The top of the roof where the two slopes meet.

Ridge Course The course of tiles or slates fixed next to the ridge which may be of a different size to the rest.

Ridge Piece A horizontal timber running the length of the ridge to which rafters may be fixed.

Ridge Tile A shaped tile placed along the ridge.

Rising Butt A door hinge which raises a door as it opens.

Roof Boarding Where rafters are covered in boards before battens are laid.

Rough Cast A rough render finish to external walls usually made with gravel.

RSJ Rolled steel joists used for supporting upper load-bearing walls above wide opening.

S

Sarking A felt used for covering roofs before laying battens.

Sash The frame of a window that holds the glass.

Settlement Sinking of foundations.

Sill The piece of timber at the bottom of a window - window sill.

Skirting A board fixed to the bottom of a wall at joint of the wall and floor.

Skylight A window in the slope of a roof.

Sleeper Wall A low wall built to support ground - floor joists.

Soakers Lead strips to provide water-proof joint between a roof slope and adjoining wall.

Stack Pipe The correct name for vertical rainwater pipe.

Stretcher A brick laid length ways in a wall.

String The sloping board to which the steps of the staircase are attached.

String Course A course of brickwork that rpojects beyond the face of an external wall.

Struck Joint Pointing depressed with a trowel handles or shaped wood.

Stucco A type of external plaster finish.

Style A vertical part of a door.

T

Tilting Fillet A timber fillet fixed at eaves to raise the edge of the first row of slates.

Tingles Strips of lead or other metal used to secure the edge of flashings or to hold slipped slates in position.

Tongue and Groove Boarding Close-fitted boards where the edge of one board fits into a groove of an adjoining board.

Trimmer Joists Used where openings are made in roofs and floors, eg for roof hatches, stairwells.

Truss As in roof truss, ie timber framed together off site.

Tusk Pointing Projecting pointing.

U

Underpin To strengthen existing walls and foundations.

V

Valley The junction between two sloping-roof planes.

Vent As in vent pipe, to allow ventilation of foul air from sewers.

W

Wainscot Panel boarding to walls.

Wallplate Timer placed on a wall to receive floor joists or roof rafters.

Weatherboard A board fixed to the bottom of a door on the outside to prevent rain driving in.

Weepholes Holes at the base of walls to allow moisture to drain out.

Appendix D
Maintenance Tips

Your home needs maintaining in the normal way, and this general advice may be useful when read together with your report. It is not specific to this property and does not include comprehensive details. Problems in construction may develop slowly over time. If you are concerned contact a RICS qualified surveyor for further advice.

Outside the Property

You should check the condition of your property at least once a year and after unusual storms. Your routine redecoration of the outside of the property will also give you an opportunity to closely examine the building.

- **Chimney stacks:** Check these occasionally for signs of cracked cement, split or broken pots, or loose and gaping joints in the brickwork or render. Storms may loosen aerials or other fixings, including the materials used to form the joints with the roof coverings.

- **Roof coverings:** Check these occasionally for slipped, broken and missing tiles or slates, particularly after storms.

  Flat roofing has a limited life, and is at risk of cracking and blistering. You should not walk on a flat roof except for maintenance work. Where possible keep it free from debris. If it is covered with spar chippings, make sure the coverage is even, and replace chippings where necessary.

- **Rainwater pipes and gutters:** Clear any debris at least once a year, and check for leaks when it is raining. You should also check for any loose downpipe connectors and broken fixings.

- **Main walls:** Check main walls for cracks and any uneven bulging. Maintain the joints in brickwork and repair loose or broken rendering. Re-paint decorated walls regularly. Cut back or remove any plants that are harmful to mortar and render. Keep the soil level well below the level of any damp proof course (150mm minimum recommended) and make sure any ventilation bricks are kept clear. Check over cladding for broken, rotted or damaged areas that need repairing.

- **Windows and doors:** Once a year check all frames for signs of rot in wood frames, for any splits in plastic or metal frames and for rusting to latches and hinges in metal frames. Maintain all decorated frames by repairing or redecorating at the first sign of any deterioration. In autumn check double glazing for condensation between the glazing, as this is a sign of a faulty unit. Have broken or cracked glass replaced by a qualified specialist. Check for broken sash cords on sliding sash windows, and sills and window boards for any damage.

- **Conservatories and porches:** Keep all glass surfaces clean, and clear all rainwater gutters and downpipes. Look for broken glazing and for any leaks when its raining. Arrange for repairs by a qualified specialist.

- **Other joinery and finishes:** Regularly redecorate all joinery, and check for rot and decay which you should repair at the same time.

Inside the Property

You can check the inside of your property regularly when cleaning, decorating and replacing carpets or floor coverings. You should also check the roof area occasionally.

- **Roof structure:** When you access the roof area, check for signs of any leaks and the presence of vermin, rot or decay to timbers. Also look for tears to the under-felting of the roof, and check pipes, lagging and insulated areas.

- **Ceilings:** If you have a leak in the roof the first sign is often damp on the ceiling beneath the roof. Be aware if your ceiling begins to look uneven as this may indicate a serious problem particularly for older ceilings.

- **Walls and partitions:** Check these when you are cleaning or redecorating. Look for cracking and impact damage, or damp areas which may be caused by plumbing faults or defects on the outside of the property.

- **Floors:** Be alert for signs of unevenness when you are cleaning or moving furniture, particularly with timber floors.

- **Fireplaces, chimney breast and flues:** You should arrange for a qualified specialist to regularly sweep all used open chimneys. Also, make sure that bricked-up flues are ventilated. Flues to gas appliances should be checked annually by a qualified gas technician.

- **Built-in fittings, woodwork and joinery:** Check for broken fittings.

Services

- Ensure all meters and control valves are easy to access and not hidden or covered over.

- Arrange for an appropriately qualified technician to check and test all gas and oil services, boilers, heating systems and connected devices once a year.

- Electrical installations should only be replaced or modified by a suitably qualified electrician and tested as specified by the Electrical Safety Council (recommended minimum of a ten year period if no alterations or additions are made, or on change of occupancy).

- Monitor plumbing regularly during use and when you are cleaning. Look out for leakage and breakages, and check insulation to tanks and pipes are adequate particularly as winter approaches.

- Lift drain covers annually to check for blockages and clean these as necessary. Check any private drainage systems annually, and arrange for a qualified contractor to clear these as necessary. Keep gullies free from debris.

Grounds

- **Garages and outbuildings:** Follow the maintenance advice given for the main building.

- **Other:** Regularly prune trees, shrubs and hedges as necessary. Look out for any overhanging and unsafe branches, loose walls, fences and ornaments, particularly after storms. Clear leaves and other debris, moss and algae growth. Making sure all hard surfaces are stable and level and not slippery or a trip hazard.

Important Information for Purchasers of Older, Listed and Historic Properties

Modern properties, those built after 1900 or so, are essentially constructed as sealed boxes which are designed to keep all moisture out. This is achieved by the use of impermeable membranes at ground level (such as a damp-proof course) to prevent moisture rising up from the ground below and cavity walls which are designed to prevent moisture penetrating through the walls. Windows and doors are made to seal tightly and most houses built today are constructed without any chimneys at all.

In this type of property, where dampness is found inside, then it is generally due to some specific defect which will require repair.

Older properties, generally those built before 1850 or so, were constructed in a very different way and one in which moisture will naturally enter the property. They do not have damp-proof courses or cavity walls and are not intended to be a sealed unit.

However, these properties are designed to manage the movement of moisture in such a way as to prevent it becoming a hazard to health or to the structure of the building and it is important to understand the mechanisms by which it does this in order to protect the structural elements of the building from becoming defective.

At the time that these properties were constructed it was normal for them to have many openings where draughts could enter the building, such as multiple open fireplaces, ill-fitting doors and windows and gaps in floorboards. As a result, ventilation levels were very high, allowing moisture to evaporate readily in the moving air and to be carried away to the outside. So, for example, where moisture penetrated the walls, although the inside surfaces of those walls would be damp, the levels of moisture would achieve equilibrium as the rate of evaporation compensated for the rate of penetration.

Today, we try to minimise draughts by blocking fireplaces, adding secondary or double glazing, laying laminate floors and sealing the gaps around doors and windows. As a result, moisture levels rise due to the decreased air movement that is a consequence of the reduced ventilation. This then leads to dampness becoming evident, particularly in areas of minimal air movement, such as behind large objects of furniture and within cupboards and wardrobes.

Many older homes were built at a time when lime mortar was the primary method of setting bricks and stones. Lime mortar is both flexible and porous, unlike the very hard, inflexible and non-porous cement mortars used in more modern construction. Lime mortar, therefore, allows the moisture evaporation process to continue by acting as a wick for moisture to leave the main walls between the bricks and/or stones that make up the bulk of the wall. This is a further step in the process of managing moisture within the property.

Today, we see many repairs carried out to older homes using cement mortar. This seals the gaps between the bricks and/or stones, trapping the moisture in the wall and forcing it into the surface of the bricks and stones, causing them to fail when that moisture freezes in the surface of those materials and by reducing the amount of moisture that can evaporate through the wall to the outside, it increases dampness levels inside.

As a result of the actions described above, it is common, today, to find higher than average moisture levels in older properties. The consequences of this can cause significant defects within the property. In particular, high moisture levels, especially in roof spaces and cellars, can promote the development of wood boring inspects such as Common Furniture Beetle and Death Watch Beetle in structural timbers such as roof and floor joists. High levels of dampness in walls causes plaster to fail, decorations to become damaged and, in some properties, significant damage to the timber frame of the building.

To avoid these defects developing and becoming a serious threat to the building, it is important to be aware of the consequences of any actions which may have an impact on moisture management within the building.

The following is a list of suggestions and recommendations that will help maintain the building in a good and sound condition. It is by no means an exhaustive list and it is recommended that all owners of listed, historic and older buildings inform themselves of the best way to protect such a property.

1. Consider ways to improve ventilation within the property. This may include the installation of mechanical extractors in kitchens and bathrooms, removing secondary glazing units, ensuring that windows can be opened easily and that they are used regularly, removing insulation from the eaves area of the roof where it may block ventilation and not leaving the property closed up and unoccupied for extended periods.

2. Where repairs are necessary, ensure they are carried out by tradespeople who are knowledgeable and competent in traditional building methods and that materials are sympathetic to those used originally. In particular, where walls are to be re-pointed, then lime mortar (which is very different from cement mortar with some lime added) should be used and any earlier cement mortar repairs removed and re-finished.

3. Ensure that the guttering and rainwater handling systems are in a well maintained and fully operative condition. Very significant damage can be caused in a very short period of time due to simple leaking gutters, downpipes, hoppers and other elements of the rainwater handling system. It is therefore essential that these are inspected regularly, at least three or four times a year and any damages or defects repaired as quickly as possible. In particular, they should be cleared after autumn leaf fall to ensure they are as effective as possible during the winter.

4. Maintain a regular and vigilant inspection process. Unidentified or unrepaired defects can rapidly become more significant and therefore more costly to repair. A regular process of inspection is more likely to ensure that defects are identified at an early stage and can be rectified before further damage is caused. Such a process should include inspection of all the outside elements such as chimneys, roofs, walls, guttering and downpipes, windows and doors and roof edge timbers etc. internal inspections should include a detailed examination of the roof timbers, moving of large objects of furniture to assess the wall condition behind, examination of floors, doors and timber fittings to identify signs of movement and the condition of the heating and plumbing systems to ensure no leaks are present. This is in addition to a general and normal maintenance programme.

5. Avoid the introduction of unnecessary interventions. Many companies will recommend the use of chemical processes such as spraying of timbers or injection of damp-proof courses as a means of rectifying the effects of dampness. In most cases, in respect of older properties, these processes are completely unnecessary, usually ineffective and in many instances counter-productive. Attempting to prevent the passage of moisture through a wall which was always intended to be damp is unlikely to affect a cure. In fact, it is likely to push the problem elsewhere and may cause even more significant damage.

Remember that, if a property is listed, any works you wish to carry out may require listed building consent and it is always best to check with the local authority Conservation Officer before undertaking any activities.

There are many useful resources of information available from, for instance English Heritage and the Society of Protection of Ancient Buildings, which can help you in understanding how to manage an older property in a sympathetic and considered way. It is strongly recommended that you gain an understanding of the means and methods that they advocate in order to protect your investment.