

TW2590 / 23 – 24th May 2023

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DAMP / TIMBER INSPECTION REPORT

REQUESTED BY

JO OWEN / HARVEY BOWES FINANCIAL SERVICES LTD.

FOR

TREDEGAR CHAMBERS
BRIDGE STREET
NEWPORT
NP20 4AQ



Surveyed by Terry White C.S.R.T. C.S.S.W.
Independent Damp Remedial Surveyor



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1. INTRODUCTION

In accordance with your instructions received via email, I have conducted a non-destructive damp / timber inspection of the above building.

PROPERTY DESCRIPTION – Four storey building with basements. The building is believed to be approx. 120 years old. There are five self-contained retail/office units at ground floor level.

WALL CONSTRUCTION – Most walls appear to be of “solid masonry” construction.

OCCUPIED STATUS – Two of the five retail / office units and one half of the first floor was occupied by tenants. The upper floors are predominantly unoccupied.

WEATHER CONDITIONS - At the time of my inspection it was sunny and dry. Recent weather had been generally dry.

I carried out the survey on Wednesday 24th May 2023

The Brief

You requested that:

- The dampness and timber decay identified in your surveyor's report (10th February 2023) be independently inspected in order to provide advice regarding appropriate remedial works (in accordance with the Property Care Association code of practice).

2. RESTRICTIONS

I have reported upon problems evident to me at the time of my visit and predominantly to the areas identified by your surveyor's report of 10th February 2023 and therefore the survey and findings / recommendations should not be considered as an exhaustive inspection of the entire property.

External inspection was generally from ground level only and therefore restricted accordingly. External inspection is specifically looking for defects that may allow moisture ingress and not a general comment upon the structural or decorative external condition of the building.

My inspection was generally restricted where dry-linings/ panelling /fixtures & fittings/ kitchen units and wall tiles and suspended ceilings were situated and therefore dampness could be present in these areas (especially if detected in adjacent walls). "Dry lining" quite simply means the application of plasterboard or other boarding to wall surfaces.

Timbers in older buildings are usually partially concealed in walls and therefore the full condition of these concealed sections will only become apparent when fully exposed. Please be aware that the "non-destructive" nature of this survey cannot confirm the condition of concealed sections.

This survey is of a non-destructive nature. In the case of damp and timber surveys the inspection is based upon a close but not intimate examination of the areas specified. Inevitably there will be walls, timbers and areas that could not be inspected fully or at all without "opening up". My recommendations are therefore subject to the qualification that a further inspection may be required once previously concealed timbers and areas are exposed or accessible. Concealed timbers such as lintels, wall bearing joist-ends and beam-ends adjacent to damp masonry and/ or with poor ventilation are at risk from fungal decay and therefore should be exposed and inspected accordingly.

If you require a further survey, which includes investigations of a destructive nature, then please confirm this in writing and please gain permission from the owners of the property. An additional fee will be required for such a survey.

CONFLICTS

As with most buildings of this age, changes have been implemented over the years, which can conflict with the original methods of construction and contribute to damp issues. As is common these days, gypsum cement render, plaster, mortar, and non-permeable wall coverings may have been applied to some walls. The original building would have relied upon lime-based mortars / plasters in order to allow moisture within the masonry to evaporate unimpeded.

The buildings would have also been more effectively ventilated and not so prone to high levels of internal airborne moisture etc. Structural alterations, additions and non-permeable wallcoverings can all contribute to dampness / decay issues. Local conditions such as drainage / water -tables, topography and the porosity of masonry / mortar etc. can also influence the building's susceptibility to dampness. Whilst these issues will always be considered in compliance with the "Investigation of Moisture and its Effect in Traditional Buildings" document (developed by organisations such as RICS, Historic England, CADW and SPAB), some changes are likely to be too onerous and impractical to reverse and therefore agreed compromises are often required if any problems are being created as a result of these conflicts.

My observations / recommendations, whilst being sympathetic to the age and construction of the building, would not necessarily address all conflicts and changes that are now commonplace and not currently causing any apparent issues.

Prospective buyers should be aware that buildings of this age are very vulnerable to dampness and therefore regular maintenance and remedial works are frequently required and this should be accepted however, good external maintenance and a sympathetic approach to wall coverings / heating and ventilation will help reduce the risk of significant issues.

ORIENTATION

Reference to front, rear, left and right are as if facing the original front entrance of the property.

3. EXTERNAL INSPECTION

GENERALLY

Buildings of this age and construction have decorative façades / parapet walls, cornices, ledges and other features. These features can be problematic if they become weathered / perished or where cracks and gaps form as they can be an entry point for rainwater and therefore regular inspection / maintenance is required.

Localised vegetation growth and internal dampness (indicative of gaps / cracks and perished mortar joints etc.) were evident.



RECOMMENDATIONS

You should instruct a specialist contractor (familiar with listed buildings) to inspect decorative façades /parapet walls, cornices, ledges and other features to the front elevation so that you can budget an appropriate contingency sum for remedial works / repair / re-pointing etc.

CHIMNEYSTACKS / ROOF COVERINGS

Older chimneystacks can be problematic as it is common for the mortar joints, render and flashings / flaunching etc. to weather and perish thereby allowing moisture to penetrate the fabric of the building. Rainwater can enter the flue if pots are not efficiently capped, or redundant stacks are not efficiently sealed. Dampness to the chimney breast in the roof void can occur in older buildings due to the absence of a damp proof barrier, which allows moisture to penetrate downwards into the chimney breast at roof level. Dampness can also occur if redundant flues are not well ventilated.

The property comprises several chimney stacks and roofs (including a flat roof with a bituminous roof covering, which has come to the end of its life).

The scope of this survey did not include an intimate inspection of the chimneystacks / roof coverings however, there are numerous defects, which are allowing moisture ingress thereby causing internal dampness / decay.

See Timber Inspection regarding roof timbers.

RECOMMENDATIONS

You should instruct a competent contractor to thoroughly inspect all chimneystacks and roof coverings for them to provide a full condition / defect report and a quotation for implementing all recommended remedial works so that you can budget an appropriate contingency sum (costs will be significant, especially where extensive scaffolding is required). All recommended remedial works should be conducted as a matter of urgency.

GUTTERING AND RAINWATER SYSTEM

Gutters and downpipes carry many hundreds of litres of water during wet weather. Their joints and end stops are particularly prone to failure as are the outfalls, which can be easily blocked by leaves and other debris. Defective rainwater goods are often responsible for damp & decay in older buildings.

The rainwater goods are a combination of cast iron / metal, PVC. Some of the goods may be of asbestos cement (see Asbestos). The gutters and downpipes throughout the property are in generally poor condition and contributing to internal dampness.

RECOMMENDATIONS

Rainwater goods should be thoroughly inspected, and all identified defects repaired as a matter of urgency. Any defective joints should be re-fixed and well-sealed, all guttering aligned correctly, and all vegetation / blockages removed.

Iron goods can be treated with a rust inhibitor and re-decorated if not too deteriorated however, it is likely that rainwater goods will need to be replaced.

More durable, cost-effective PVC is usually a more pragmatic option but there are likely to be restrictions due to the listed status of the building.

The scope of this survey did not include a drainage inspection.

It is important to ensure that downpipes are discharging rainwater into appropriate drains /soakaways or well away from the base of the structure. Concealed downpipes should be further investigated to ensure they are connected to efficient drains or soakaways.

You are advised to obtain inspections / quotations from local contractors familiar with listed buildings so that you can budget an appropriate contingency sum.

EXTERNAL RENDER

Render (or external plastering) is applied to external walling to cover various substrates. The function of external rendering is usually to provide resistance to wind driven rain, but often it is also used to enhance the appearance of a structure. If render becomes cracked or hollow (due to de-bonding) rainwater can accumulate behind the render and penetrate the fabric of the walls.

The render the main rear wall could not be inspected in detail but crazing / deterioration was visible.



The render within the rear courtyard is in direct contact with the path, which will increase the risk of ground moisture “bridging” any existing damp proof course / internal dampness.



The render appears to be of cement specification, which can impede the natural evaporation of moisture from the masonry in solid masonry constructed buildings. See Conflicts on Pg.4.

RECOMMENDATIONS

The external render should be more thoroughly inspected at all levels for evidence of cracking and / or significant hollowness. Any cracked or hollow areas should be repaired or renewed as appropriate.

“Patch-repairs” are acceptable if the areas of deterioration are not too large however, the render is likely to be at a stage where it needs replacing.

Render should stop approx. 150mm from the ground and the bottom edge finished in a “bell mouth” or “bell cast” detail (the masonry below the bell cast should be left exposed) to prevent ground moisture from rising into the render / walls.

Rendering works are extremely costly and therefore you are advised to obtain inspections and quotations from local contractors familiar with period properties in order to budget a contingency sum.

All damaged masonry / perished mortar joints that become exposed must be repaired / repointed as appropriate.

The Society for the Protection of Ancient Buildings who can provide useful information regarding specifications for your age and construction of building. There may be an option to leave masonry exposed if structurally sound and in an aesthetically pleasing condition.

<http://www.spab.org.uk> Technical Advice Line: 0207 456 0916.

MASONRY & MORTAR JOINTS “POINTING”

Perished mortar/damaged masonry can allow moisture to penetrate the fabric of the walls and, if severe, can destabilise the structure.

Where visible, the brickwork and mortar (“pointing”) appeared in reasonable condition however, staining / vegetation growth was apparent where gutters have failed. This will have caused the corresponding mortar joints to perish.



RECOMMENDATIONS

Vegetation should be removed, the masonry cleaned, and perished / damaged mortar joints repointed.

The mortar joints and masonry should be more thoroughly inspected by a specialist contractor and, as stated by your surveyor, the Bath stone detailing throughout the property is in need of thorough inspection and specialist repair.

Mortar joints (to include windowsill / window ledge seals) should be more thoroughly inspected once access can be gained.

All perished / de-bonded mortar joints should be re-pointed as appropriate.

RE-POINTING

When re-pointing is carried out, it is essential that the joints be raked-out sufficiently, usually to a depth of not less than 20 mm so that the new mortar is given sufficient key. Failure to do this can result in the new pointing simply cracking and falling out over a relatively short timescale. The new mortar should ideally be of a lime specification but not be too weak, conversely, it should not be stronger than the brick to which it is applied. A common misconception is that mortar requires a large proportion of cement in the mix, but too rich a cement content can cause problems.

This scope of works will be extremely costly and therefore you should obtain quotations from specialist contractors familiar with listed / period buildings so that you can budget an appropriate contingency sum.

WINDOWS

Some of the existing timber window frames are decaying / rotting due to poor maintenance, which will be contributing to dampness and plaster / decoration deterioration to internal window reveals.

RECOMMENDATIONS

The windows / window frames throughout the building should be more thoroughly inspected by a specialist so that so that you can budget an appropriate contingency sum. Repairs / replacement can be extremely costly.

EXTERNAL GROUND LEVELS

High ground levels may allow ground moisture to penetrate the fabric of the walls, allow ground moisture to bridge any existing damp proof course and put adjacent floor timbers at risk from decay. High ground levels can often cover /block sub-floor air vents (which are essential where timber floors are present).

There are abutting paths to the courtyard and rear walls. Abutting paths (especially concrete) will restrict drainage of groundwater and encourage moisture to penetrate the base of the walls.



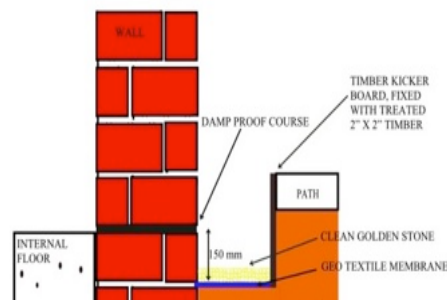
RECOMMENDATIONS

Good building practice recommends that, where practical, external ground levels are at least 150mm below internal floor level.

It is recommended that any paths / soil levels higher than this be reduced and decking cut back from abutting the wall. It is acceptable to create a channel or gully at the base of the wall and not necessary to carry-out extensive excavation works.

If this is not work you intend to conduct yourself, you are advised to obtain quotations from a competent local contractor so that you can budget a contingency sum.

Example of a typical ground reduction channel (other options are available including the installation of aco drains (or similar).



DAMP PROOF COURSE (DPC)

Damp proof courses are a barrier designed to prevent “rising damp” (moisture rising from the ground through the masonry by capillary action).

The formal requirement for a damp course was introduced in 1875 and consequently, older buildings were not always built with a recognisable damp proof course. Slate, engineering brick or bitumen mixed with mortar were utilised in earlier construction. These earlier damp courses tend to be more unreliable. Bitumen felt damp courses are the most common type and were used mainly between the 1920s and 1980s. Plastic strip damp courses were used from the 1970s and are now the most common type of damp course in new construction.

There was no apparent evidence of a damp proof course to the original external walls of the property. Buildings of this age were often constructed with a slate damp proof course however, this may have deteriorated or become “bridged” by high path levels / structural alterations etc.

DRAINAGE

The scope of this survey did not include inspection of the drainage system. Good external drainage and correct ground levels etc. will help reduce the risk of internal dampness and therefore **it is usually beneficial to have a drainage survey conducted in a building of this size prior to commitment to buy.**

4. INTERNAL INSPECTION

BASEMENT / CELLAR

Much of the ground floor appears to be of suspended timber construction, which extends over basement areas. Some of the basement areas were not accessible at the time of my visit. Your surveyor was able to gain access at the time of his survey and noted the following:

*Inspection within the accessible basement areas revealed areas of **rot and decay affecting timbers** notably to the front and right-hand sides of the property where built into external masonry.*

There are further areas of active wood boring insect infestation within timbers.

Various past repair and strengthening work has been undertaken notably where timbers extend to the front. This has, in places, involved the installation of new steel framework. The steel framework has been affected by damp with areas of corrosion noted. The framework will require attending to as necessary.

As noted elsewhere within this report there is extensive dry rot attack within timbers.

There is limited ventilation provided to the basement area.

As would be expected in subterranean structures (that have not previously been fully waterproofed / tanked), the walls and some floor areas will be damp due to penetrating ground moisture / rising damp and mineral salt migration.

RECOMMENDATIONS

TIMBER TREATMENTS

I will be pleased to conduct a more detailed survey of the basement if access can be provided. Please do not hesitate to contact me if this is required.

Your chosen contractor should conduct a comprehensive inspection of all timbers within the basements / cellars in order to provide a method statement and quotation for all remedial works.

All decayed timber should be removed (ensuring that remaining sections and masonry are adequately supported). All removed timber should be replaced with new (preferably pre-treated) timber.

All surfaces to be in direct contact with masonry should be isolated using a suitable damp proof membrane or (as a minimum) treated with a fungicidal gel /paste.

Timbers and areas affected by Dry rot (Serpula lacrymans) must be additionally treated in accordance with the Property Care Association Cod of Practice – see Dry Rot on Pg.18.

WOODWORM ERADICATION TREATMENTS

You are advised to budget a contingency sum to have all accessible timbers within the cellars treated:

Spraying treatments using water-based insecticides are most common and are generally successful and cost effective. Any damaged / decayed timber identified during treatments should be repaired / replaced as appropriate.

The PCA (Property Care Association) can provide a list of approved contractors for any specialist remedial treatments. (www.property-care.org).

VENTILATION

Upgrading of ventilation to the basement area is recommended to reduce the risk of damp conditions within the sub floor void causing rot and decay of timbers. This can be achieved by installing additional air vents / air bricks.

INTERNAL STRUCTURAL WATERPROOFING (“TANKING”)

If the area is to remain a cellar / plant room for basic storage purposes only, capillary-held dampness and minor levels of “free” moisture can be classed as acceptable (as long as timbers are not in direct contact with damp masonry and that good ventilation is provided) however; should you wish to convert the cellar into a dry storage or habitable area of accommodation, remedial structural waterproofing (sometimes referred to as “tanking”) works would be necessary. Please contact me if you require further information.

GROUND FLOOR LEVEL

RETAIL / OFFICE UNITS

There are five units at ground floor level. Only two units are currently occupied. Inspection to the occupied units was very restricted due to panelling / dry linings and fixtures / fittings etc. The fourth unit from the right is currently boarded and was not accessible. At the time of my survey, I understand that your chartered surveyor found extensive problems within this unit (including a dry rot outbreak and therefore you should budget a contingency sum as a precaution. I will be pleased to conduct a more detailed survey of this unit if access can be provided. Please do not hesitate to contact me if this is required.

Many of the retail / office unit walls have been dry-lined. “Dry lining” quite simply means the application of plasterboard or other boarding to wall surfaces. Dry –linings restrict meter readings and therefore it is not possible to confirm accurately moisture levels of the concealed wall without exposing the masonry. Dry lining can be an acceptable method of wall finish if installed to the correct specification

Inspection to the units was also very restricted due to furniture / fixtures / fittings and stored goods etc.

The accessible walls (in the areas highlighted by your surveyor’s report) were tested

with a Protimeter Electronic Moisture Meter. This type of meter evaluates moisture by measuring the electrical resistance of the walls. Readings are not always entirely accurate as they can be affected by the presence of hygroscopic salts, metallic wall coverings, carbon in plaster and condensation etc. To carry out an accurate assessment of a wall would require some destructive works following standard test methods outlined in BRE digest 245 however; such a test is usually beyond the scope of most initial assessments.

Readings obtained from masonry do not record percentage moisture or percentage saturation and are only used to plot a pattern of any dampness present however, the general profile/pattern of Protimeter readings can be extremely useful in drawing initial conclusions.

“RISING DAMP”

Rising Damp is simply, water from the ground that enters a masonry structure by means of “capillary action”. Water that enters or affects a building through any other route can move about in various ways but is not true rising damp. Rising damp is a problem encountered in some types of building.

Most types of masonry used in the walls of buildings will allow some water movement by capillary action; however, this is usually controlled by a physical barrier or damp proof course (“DPC”). If this physical barrier is absent, has broken down or is damaged then elements of rising damp are possible depending on the wall structure and water-table levels / local topography etc.

Water rising from the ground often introduces contaminating salts into the walls and plaster coats. This contamination will often contribute to dampness levels and although, can be removed from plaster by means of re-plastering, will remain in masonry and therefore dampness is still likely to be detected where true rising dampness has occurred (see Plaster & Salts).

Elevated meter readings were obtained from the base of the entrance hall (communal staircase to the main building), the base of the corresponding right flank wall in the second unit from the left (no 77) and to many of the accessible walls in the rear of the fifth (corner unit).

I understand that rising damp was also detected by your surveyor in the inaccessible, boarded unit and therefore you should budget an additional contingency sum as a precaution.

The pattern of dampness was generally indicative of “rising damp” however; dampness will have been exacerbated due to the following:

- Penetrating moisture from external defects (see External Inspection).
- Possible drainage defects.
- Non-permeable wallcoverings (see Conflicts on Pg. 5).
- Salt contaminated plaster (see below).
- Poor sub- floor ventilation in the voids / cellar below (see Cellar)

PLASTER & SALTS

If moisture rises or penetrates from the ground into a wall, it carries with it soluble salts which may be deposited in the wall fabric and plaster, as the moisture evaporates these salts, in particular chlorides and nitrates, are hygroscopic; meaning that they are capable of attracting and absorbing moisture from the atmosphere when the relative humidity is high. This means that the accumulation of salt may exacerbate dampness and wall plaster / decoration deterioration.



RECOMMENDATIONS:

REMEDIAL DAMP PROOFING / PLASTERING

Much of the dampness on (or adjacent to) external walls will be being caused or exacerbated due to external defects and therefore it is usually sensible to have all recommended external remedial works carried out in the first instance (see External Recommendations). It is always sensible to ensure that there are no plumbing / drainage defects that could be causing /contributing to dampness levels.

The walls should be thoroughly inspected by a specialist contractor once fully accessible. The PCA (Property Care Association) can provide a list of approved contractors for any specialist remedial treatments. (www.property-care.org) but please contact me if you need further guidance.

You should budget a contingency sum to have the affected walls treated / re-plastered:

The existing plaster should be removed back to the masonry.

It is recommended that, once the existing plaster has been removed, the masonry be left exposed for a period of time before re-plastering in order to allow any residual / trapped dampness the opportunity to evaporate before the new plaster is applied. Dehumidifiers / blow heater could be used to accelerate the drying out process.

Re plastering plays an essential role in successful damp-proofing and therefore you should discuss re plastering specifications carefully with your chosen contractor. Sand / cement plasters can conflict with older / weaker plasters and therefore it is essential that the new plaster be taken to the correct height and distance in order to prevent dampness and salt migrating into the weaker plaster. A “salt-inhibitor” should be incorporated in the specification. Plaster should not be in direct contact with solid floors.

As stated, buildings of this age and construction are likely to have originally relied

upon the walls having a “breathable” quality so that damp masonry can go through a natural and unimpeded evaporation process. Lime-based plasters would have traditionally been used in order to be sympathetic to this breathable principle however; whilst the concept of re- applying lime based “plaster” is appealing, it may not be so appropriate or aesthetically pleasing where more severe levels of dampness / salt migration have occurred (i.e. where a lengthy drying out process will follow) and where incompatible with adjacent plaster and / or there are high external ground levels and the walls are prone to penetrating damp.

Note re. remedial chemical damp proofing:

Although controversial and, in my opinion, not appropriate in buildings of this age and construction (especially if external defects can be attended to), Injected Chemical Damp-Proof Courses are still the most popular system of controlling true rising damp where it is considered that the original damp proof course has failed, has become bridged or is absent. They are usually specified by contractors in order for them to provide a long-term guarantee. If specified, installation should conform to British Standard (BS 6576:2005- Code of practice for diagnosis of rising damp in walls of buildings and installation of chemical damp-proof courses) and should be approved through a British Board of Agrément Certificate BBA. Damp proofing is also covered by the Codes of Practice of the Property Care Association (formerly known as the BWPDA). A more recent innovation in the injected damp course market is the use of gels and creams, which are squeezed into pre-drilled holes using a large mastic gun. These products are likely to be much more effective in walls of this construction than fluid-based systems.

ALTERNATIVES TO CHEMICAL DAMP PROOFING / CEMENTITIOUS PLASTERING:

As an alternative to controversial damp proofing / cementitious plastering, it is acceptable to apply a “dry-lining” system to the affected walls (preferably a cavity drainage membrane dry lining system as detailed below). This system will eliminate the need for further controversial chemical damp proofing and cementitious plasters / renders and is a more sympathetic method of providing a long-term dry internal wall surface. Dry lining systems where plasterboard is “dab” fixed directly to plaster or masonry is not suitable for buildings of this age / construction.

CAVITY DRAINAGE MEMBRANE “AIR-GAP” / DRY LINING.

Where full structural waterproofing is not thought to be necessary and there is no risk of “free” moisture (flooding); it would be acceptable to apply a Cavity Drainage Membrane (CDM) as an advanced Dry Lining System.

These membranes are very durable and, if installed correctly, can provide a long-term effective solution to providing dry internal wall surfaces regardless of capillary held moisture / salts being present in the masonry behind.

The cavity membrane is usually constructed with a 3 / 5mm stud which, when flat against the wall, will provide an air gap preventing moisture vapour from building up and allowing wall to breathe naturally. Ventilation profiles can be installed in order to allow evaporation / air movement to occur

The lath (or mesh) version will allow plasterboard to be “dab” fixed (because the dab is not in contact with the masonry the risk of moisture “bridging” is reduced). A thermal plasterboard and finishing plaster skim can then be applied to provide an acceptable dry finish suitable for decoration of your choice. This system should also help provide warmer internal wall surfaces less prone to condensation. There is no need to remove existing “sound” plaster however, any wall bearing timbers or timbers adjacent to masonry should be isolated / protected from moisture ingress. Plaster should still be removed for the masonry to be exposed and to breathe unimpeded.



Plaster board being fixed to membrane.

GENERALLY (ALL LEVELS)

PENETRATING DAMP

Penetrating damp referred to in this report is moisture that penetrates the fabric of the building, caused by external defects or internal plumbing / drainage defects. Most masonry is generally water resistant, but it is not entirely waterproof. Factors such as the degree of weather exposure, the density of the masonry and / or mortar joints all influence the resistance of moisture penetration. Some underlying capillary –held moisture is almost inevitable in older solid wall buildings (especially if non-permeable wallcoverings / cement products have been applied to the walls) however, this dampness is not necessarily problematic as long as adjacent timbers are not compromised.

Moisture ingress and the resultant plaster / decoration deterioration was evident to walls and ceilings throughout the building at all levels (as detailed by your surveyor’s report).

The damp penetration is typically associated with leaking rainwater goods, roof covering defects, failed flashings (between roofs and parapet walls), chimney stacks defects (see Chimneybreasts and Flues) and internal plumbing defects (leaks).

There is also evidence of water ingress around decayed window frames.

RECOMMENDATIONS:

All external defects allowing moisture ingress should be fully identified and rectified in the first instance. See External Inspection.

Internal damp / damaged wall plaster will require hacking-off back to masonry and replastering / upgrading as necessary.

It is recommended that, once the existing plaster has been removed, the masonry be left exposed for a period of time before re-plastering in order to allow any residual / trapped dampness the opportunity to evaporate before the new plaster is applied. Dehumidifiers / blow heater could be used to accelerate the drying out process.

Walls that have been subject to moisture ingress over a long period of time will take several months to dry out, this will be further impeded where non-permeable wall coverings are present.

TIMBER TREATMENTS / REPAIR

Once the damp / defective wall plaster and ceilings have been removed, an additional inspection of currently concealed timbers is essential.

Any decayed timber should be removed (ensuring that remaining sections and masonry are adequately supported). All removed timber should be replaced with new (preferably pre-treated) timber.

All surfaces to be in direct contact with masonry should be isolated using a suitable damp proof membrane or (as a minimum) treated with a fungicidal gel /paste.

Timbers and areas affected by Dry rot (*Serpula lacrymans*) must be additionally treated in accordance with the Property Care Association Cod of Practice – see fungal attack (wet rot & dry rot) on Pg. 18.

CHIMNEYBREASTS / FLUES

Dampness was detected to many of the chimneybreast and adjacent ceilings / walls.

Dampness to chimneybreasts can be caused by moisture ingress, salt contamination and / or poor ventilation/ condensation.

There are three likely routes by which rain can enter the chimney / flue structure: simply down the flue and into the building through ineffective capping's, around defective flashings between the chimney and the roof; or through the wall of the chimney stack itself where the fabric is too thin, too porous or too perished to prevent penetrating rain from penetrating the structure.

The condensation of airborne moisture is also common cause of dampness in flues (especially redundant ones). In a well-ventilated flue, warm air rises constantly, drying out the chimney. Moisture levels increase rapidly in a redundant flue if either the fireplace or the chimney is sealed. It is therefore essential to maintain ventilation to all flues, including redundant ones, in particular, top and bottom.

“Rising damp” can be present at the base of chimney breasts as they are often constructed without a damp proof course. Debris in the base of the flue is also a common cause of dampness and therefore it is often beneficial to have any “closed” flue inspected to ensure there is no detritus present that could be contributing to dampness.

Damp causes problems however it enters a flue, whether the flue is in use or redundant. The moisture combines with sulphates deposited inside the flue as a result

of combustion to form weak acids. These acids attack the lime in the structure and the mortar joints, as well as the brickwork itself. They also form “hygroscopic salts” (salts that attract airborne moisture), which will continue to cause dampness and plaster / decoration deterioration, even if defects have been rectified.

Occasionally damp will penetrate the brickwork to form “tarry stains” on plaster and decoration.

RECOMMENDATIONS:

Once external stack defects have been fully identified and rectified (see External Inspection) and the flue has been effectively vented (and any debris removed from the base of the flue), the affected chimneybreasts will require re-plastering. This plastering should be of a good quality sand /cement specification (incorporating a salt inhibitor). Alternatively, the membrane / dry-lining system (detailed on Pg.15) could also be applied.

If replastering, it is recommended that the masonry be left exposed for a period of time before re-plastering in order to allow any residual / trapped dampness the opportunity to evaporate before the new plaster is applied. Dehumidifiers / blow heater could be used to accelerate the drying out process.

FUNGAL ATTACK (WET ROT & DRY ROT)

As stated, many of the timbers adjacent to moisture ingress have become affected by fungal attack (“wood rot”).

Significant damage due to a Dry Rot outbreak has occurred to timbers adjacent to the rear wall at Ground floor level and the corresponding First Floor Level timbers, spreading into the kitchen and W.C. areas). The floor / ceiling timbers in these areas have lost structural integrity and therefore the areas should be avoided until repair works / treatments can be undertaken.





The floor timbers have lost structural integrity.



Fungal decay occurs in timber that becomes wet for some time and is the result of the attack by one of a number of wood-destroying fungi. The most well known are *Serpula lacrymans* the True dry rot fungus. Dry rot is only caused by *Serpula lacrymans* and is the most serious form of fungal decay in a building. It can spread onto and destroy much of the timber. Wet rot occurs more frequently, but is less serious; decay is typically confined to the area where timber has become and remains wet.

Fungal decay always arises because the wood has become wet, about 20 % moisture content. Finding the source of dampness and eliminating the ingress of moisture and promoting drying is always necessary.

Causes of Dampness / Fungal Decay

The first step after discovering fungal decay is to try to ascertain how and where the water is entering. In this instance, moisture ingress associated with leaking rainwater goods, roof covering defects, failed flashings (between roofs and parapet walls), chimney stacks and internal plumbing defects (leaks) are responsible.

Wood Destroying Fungi

Outbreaks of dry rot and wet rot start in similar ways. The mature fruiting bodies of wood-destroying fungi that develop during an attack produce millions of microscopic spores and these are widely dispersed by air currents. If they fall on untreated damp wood they will germinate by pushing out a hollow tube called a hypha that grows and branches to form a mass of hyphal threads called mycelium. Mycelium develops inside the timber and breaks down the wood for food. The timber may darken in color and develop a characteristic cracked appearance.

Eventually, the wood loses its strength and, in some situations, may become dangerously unsafe.

The main differences between dry rot and wet rot are the degree of development of mycelium on the wood surface and the ability of the fungus to spread into other timbers via adjacent masonry.

Dry Rot (*Serpula lacrymans*)

The mycelium of *Serpula lacrymans* develops extensively on the surface of infected timber and in still, humid conditions produces a mass of cotton wool-like growth. Mycelium spreads over the timber surface by the continued growth and branching of the delicate hyphal threads at the growing with time. Specialised strands develop within the mycelium and these supply water and nutrients to the growing front with time. The strands assume their real significance when the fungus spreads from infected timber onto the surface of adjacent stone or brick walls. The tiny hyphal threads penetrate the mortar joints and plaster layers and large areas of damp wall can then become infected. The fungus cannot derive any nourishment from the wall materials (although it is thought that calcium salts in such materials contribute to the success of the fungus in such situations) and the strands, which have thick walls and are resistant to moisture loss, are able to continue to supply water and food to the growth for considerable periods of time. The mycelium in which the strand originally developed often breaks down. In such cases, the strands alone link the food source (decaying wood) and the hyphae at the growing front and remain as the only evidence of fungal growth in the wall.

WET ROT TREATMENTS

In the first instance, it is necessary to eliminate the moisture source.

Your chosen contractor should conduct a comprehensive exposure survey of all timbers adjacent to the identified areas of moisture ingress / leaks in order to provide a method statement and quotation for all remedial works.

All decayed timber should be removed (ensuring that remaining sections and masonry are adequately supported). All removed timber should be replaced with new (preferably pre-treated) timber.

All surfaces to be in direct contact with masonry should be isolated using a suitable damp proof membrane or (as a minimum) treated with a fungicidal gel /paste.

DRY ROT TREATMENTS

In the first instance, it is necessary to eliminate the moisture source. It is then essential to determine the full extent of the attack, which will involve significant exposure work.

I have outlined the recommended treatments for Dry Rot eradication as covered by the Codes of Practice of the Property Care Association (formerly known as the BWPDA) however; it will be necessary for your chosen contractor to determine the final specification in order for them to provide a long-term guarantee.

Badly decayed wood should be removed and disposed of safely. Every care should be taken to minimise the spread of spores by careful handling and spraying any fruiting bodies with a fungicidal solution.

In cutting out decayed wood, it is customary but not essential to allow a margin of safety by cutting well beyond (600mm) the portions in which the rot is present.

Plaster, which shows signs of fungal infection, should also be cut out to a minimum of 600mm past the last evidence of decay. Following this, any walls showing traces of fungal mycelium or fruiting bodies may be cleaned down and sterilized by applying a masonry biocide.

In most instances, a surface application of fungicide will be sufficient if all the recommended measures are undertaken. It is difficult to achieve in-depth treatment of a wall, particularly in brickwork with open joints in masonry walls with loose rubble infill cores, and in-depth treatment, often called 'irrigation', is only of value when the need for deep penetration can be demonstrated. Examples are:

1) To impose a toxic barrier, between an outbreak and woodwork as yet unaffected; in a party wall where only one side is being treated; in the base of an infected wall where the fungus may have become firmly established in timber debris in adjacent soil.

2) Where full removal of plaster from the wall surface is not desirable (as in the case of valuable decorative plasterwork) irrigation could be undertaken. Whichever method is used, allow walls to dry out as much as possible after treatment and brush off any efflorescence on the surface. Efflorescence may be avoided if the infected wall is rendered with a fungicidal plaster. Fungicidal paint should then be employed around the joist ends where plaster would normally not be used. Plaster and paint containing zinc oxychloride are recommended. Only where the risk of efflorescence is unacceptable should these treatments be used alone.

Sound timber that is not removed from the vicinity should be treated *in-situ* by applying a liquid or paste preservative in accordance with the manufacturer's instructions. Timber used for replacements should always be pre-treated with an effective preservative. Today, pre-treated timber can be obtained easily from most timber merchants - remember to re-treat any cut ends or joints. In buildings where the cause of moisture ingress is not easily remedied, as in the case of old houses lacking damp proof courses, it is essential that the maximum protection be given to all replacement timbers.

Improving heating and ventilation systems, even if only temporarily, will speed up drying out of a building and do much to prevent further development of dry rot. It is of the utmost importance that measures taken against dry rot should be as complete and effective as possible because failure will likely result in a recurrence of the attack.

Prevention

Good maintenance to prevent moisture ingress is essential.

The ends or surfaces of timbers should be kept out of contact with the masonry of the outside wall, or, if for any reason this is impossible, the ends of the wall-bearing timbers should be treated and isolated with damp proof membrane.

Where there is any possibility that dry conditions cannot be maintained, it is essential that all timber should be pre-treated. In exposed places where rain is likely to be driven by wind between masonry and window / doorframes, then additional preservative treatment is necessary.

ROOF VOIDS

There are several access hatches at third floor level allowing for access into the roof voids. There was no access available to view the timbers to the rear right hand side of the upper floor accommodation where extending below the mansard roof area and similarly no access to view the roof timbers to the lower-level roofs to the rear.

Inspection to the rafter feet and wall plates at eaves level was not possible. Timber rafters and wall plates at eaves level can be affected by dampness, especially if any roofing felt / sarking has perished at gutter level or timbers are exposed to the elements. This should be more thoroughly inspected once access can be gained. This is usually done externally by lifting tiles at gutter level.

There is evidence of past repair to the front of the property where original timbers have been affected by rot and decay. This has included additional strengthening using steel supports.

There are areas of further rot and decay affecting timbers where ongoing areas of water ingress have occurred. Water ingress is particularly apparent to the base of chimney stacks and to the parapet areas.

There is more significant staining and rot within timbers was evident where bearing into the external wall adjacent to the chimney stack to the right flank side of the property.

There is also evidence of significant condensation (mould / staining) within the roof voids. This has caused further damp staining of timbers. The condensation is associated with inadequate ventilation of the roofs.

RECOMMENDATIONS

In the first instance, it is necessary to eliminate the moisture source.

Your chosen contractor should conduct a comprehensive exposure survey of all timbers adjacent to the identified areas of moisture ingress / leaks in order to provide a method statement and quotation for all remedial works.

All decayed timber should be removed (ensuring that remaining sections and masonry are adequately supported). All removed timber should be replaced with new (preferably pre-treated) timber.

All surfaces to be in direct contact with masonry should be isolated using a suitable damp proof membrane or (as a minimum) treated with a fungicidal gel /paste.

Timbers and areas affected by Dry rot (Serpula lacrymans) must be additionally treated in accordance with the Property Care Association Cod of Practice – see fungal attack (wet rot & dry rot) on Pg. 18.

Ventilation can be improved by installing tile vents into the roof slopes.

5. SUMMARY / BUDGETING ADVICE

Once all external defects (allowing moisture ingress) have been fully identified and rectified and the fabric of the building has had the opportunity to dry out, localised ground floor areas of the property will require specialist remedial damp proofing treatments.

Extensive “making-good” and re-plastering works will be required throughout the building where moisture ingress and leaks have occurred in addition to specialist remedial treatments. All concealed timbers in the areas where moisture ingress has occurred will need to be exposed and inspected to ensure they have not become decayed (and replaced / repaired / treated as appropriate). You must allow a contingency sum for inevitable additional timber treatments / repair / replacement works. The full extent of this will not be apparent until exposure works have been completed but the costs are likely to be considerable.

“Dry Rot” fungal attack is destructive and onerous to treat as it will require plaster removal (and re-plastering), timber removal (and replacement) in addition to specialist masonry and timber treatments. It is essential that the full extent of any attack is fully ascertained prior to the production of a treatment plan / method statement however, Dry Rot appears to have affected large areas of the building and therefore will be very costly to treat / eradicate and to “make-good” resultant damage. It is difficult to provide an estimate / budgeting guide for specialist dry rot treatment at this time as the full extent of the attack / damage will have to be identified with an exposure survey in the first instance. Most contractors will charge a day rate to conduct this initial exploratory survey before providing a quotation / method statement for full treatment. You should expect exploratory surveys and subsequent treatments / repair / replacement works to be in excess of £40,000.00** but, please be aware that, at this stage, this estimate is purely speculative (based on what is currently visible) and therefore should not be totally relied upon.

Woodworm treatment is normally cost effective and not too costly. Treatments to the floor timbers (accessible from the cellar) should not be more than approx. £3,000.00**.

Damp proofing at ground floor level appears generally localised, although large areas of wall have been “dry lined” and therefore were not accessible at the time of inspection. You are advised to budget a contingency sum of approximately £15,000.00**.

Structural waterproofing (“tanking”) to the cellars / basements will only be required if the areas are to be converted to a habitable and /or totally dry area of accommodation. Structural waterproofing to BS8102:2022 would be extremely costly. Please contact me if you require further information.

6. NOTES

This survey is specifically addressing damp and timber (wood boring beetle infestation / wood rot) related issues. This survey must not be regarded as a substitute for a structural survey or a general defects report. A structural surveyor / engineer is required to inspect severely damaged areas of the structure.

Damp issues are often subjective and therefore the recommendations are based on the evidence available to me at the time of inspection using electronic meters, backed by my own experience and knowledge and your surveyors report.

**Budgeting advice is based on my knowledge of the industry and given in good faith but should not be totally relied upon as at this stage it is speculative. Fees vary from area to area and can vary considerably between national and local contractors. Budgeting guides would not allow for additional ancillary works such as removal of fixtures / fittings and the isolation of electrics / plumbing etc.

I have not given budgeting guides for more generally recommended remedial works. Where treatments have been recommended, you are advised to obtain at least 2 quotations from reputable and relevantly qualified contractors (preferably before commitment to buy).

The PCA (Property Care Association) can provide a list of approved contractors for any specialist remedial treatments. (www.property-care.org) but please contact me if you need further guidance.

If treatments are required to a party wall, then The Party Wall Act (1996) applies.

If the property is of a listed status, permission must be gained from the local authority prior to the commencement of any remedial treatments. Refer to your contractor for any action you are responsible for.

Asbestos: All property built, altered or renovated prior to the year 2000 may contain asbestos in various areas. For example, textured wall/ceiling coatings, flues, some roofing slates or corrugated sheets, soffits, soil pipes, down pipes, certain types of insulation, thermoplastic floor tiles, and insulating boards such as dry linings.

Asbestos is not harmful unless fibres are released into the air. The existence of asbestos cannot be identified without a test, which is beyond the scope of this report.

You should ask for a specialist to undertake appropriate tests.

My report is for the clients use only and whilst it may be shown to professional advisers acting on our client's behalf the contents are not to be used by any third party without my permission. Without such consent I am unable accept any liability to a third party.

FINALLY

This concludes my report in respect of this property. The area that I have reported upon are those inspected in accordance with your specific instructions if there are other areas requiring examination, or if you believe I have misinterpreted your survey instructions, please let me know at once.

If you wish for me to revisit the property to inspect the areas inaccessible at the time of this survey, please do not hesitate to contact me.

I trust the above meets with your approval; if I can be of any further assistance in this or any other matter, please do not hesitate to contact me.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Terry White', with a long horizontal line underneath it.

Terry White CSRT CSSW
Independent Remedial Surveyor