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**Is there confusion within the surveying profession about the  
existence of rising damp and is the correct advice being  
given to homeowners?**

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## Abstract

The following comments were made by homeowners after receiving survey reports:

*“I wasn’t sure what that meant”; “Surveyor was useless!”; “I didn’t really know what to do.”*

*“Homebuyers survey is a total waste of £500 ish [sic] - get a gas fitter, electrical test and use your own common sense with a pair of binoculars for the roof - it's cobblers.”*

*“...building survey – won’t be worth the paper its [sic] written on. One of those panel firms.”*

As a surveyor, the author finds the comments both alarming and disheartening. Are these isolated opinions or is the profession providing a poor service to its clients?

This study looks at the recommendations that surveyors are providing to homeowners, primarily focusing on damp and whether homeowners understand the advice provided.

Primary data has been gathered by laboratory testing, reviewing surveys, interviewing homeowners and surveyors and rigging a test-house for examination by specialists. Secondary data has been gathered by reviewing existing literature and videos and evaluating the strengths and limitations of these.

The study determined that surveyors have a sound theory of rising damp but are placing too much confidence in both an electronic moisture meter for diagnosis and in recommending further investigation by damp specialists to get to the bottom of problems.

Homeowners broadly understand what rising damp is in theory but the language used in reports was often not properly understood, and although many of the homeowners instructed remedial works, they had little to no understanding of the works that had been undertaken and how they would remedy the problem.

The test-house experiment resulted in six damp treatments being prescribed for a dry wall. Rising damp was not able to be created in laboratory experiments. However, it was found that slate, PVC and engineering bricks proved effective at preventing moisture transfer. Despite a number of attempts, no relationship could be found between moisture readings taken with an electronic moisture meter and carbide testing.

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## List of Abbreviations

Abbreviation	Full Wording
AH	Absolute Humidity
BRE	Building Research Establishment
BS	British Standard
CDPC	Chemical Injection Damp Proof Course
CM	Carbide Meter
DNR	Did not Record
DPC	Damp Proof Course
DPM	Damp Proof Membrane
EHS	English Housing Survey
HBR	Home Buyers Report
HCLG	Ministry of Housing, Communities and Local Government
LDPE	Low-density Polyethylene
LHS	Left Hand Side
PCA	Property Care Association
RH	Relative Humidity
RHS	Right Hand Side
RICS	Royal Institution of Chartered Surveyors
UK	United Kingdom

## Statement of Original Authorship

Declaration

### Statement of Authorship

I declare that the work contained within this dissertation to be my own innovative work and that no part has been plagiarised from any source whatsoever. Where work, theory or concepts have been taken or adapted from other authors, these have been properly cited and referenced.

Word count: 15,136

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Signature: 

Date: 28/08/2019

## 1 Introduction

For most people in the United Kingdom (UK), moving out of the family home is part of growing up. Unlike in mainland Europe, renting is seen by many as a less attractive option than ownership (Scanlon, 2014, p4). Last year in the UK, there were 856,420 residential property purchases (ons.gov.uk). Although the way the market receives and views information has been changed by technology (CLS, 2016), the stages in the purchase process have not changed for generations (MAS. n.d.) and many purchases take the form detailed in Fig. 1.

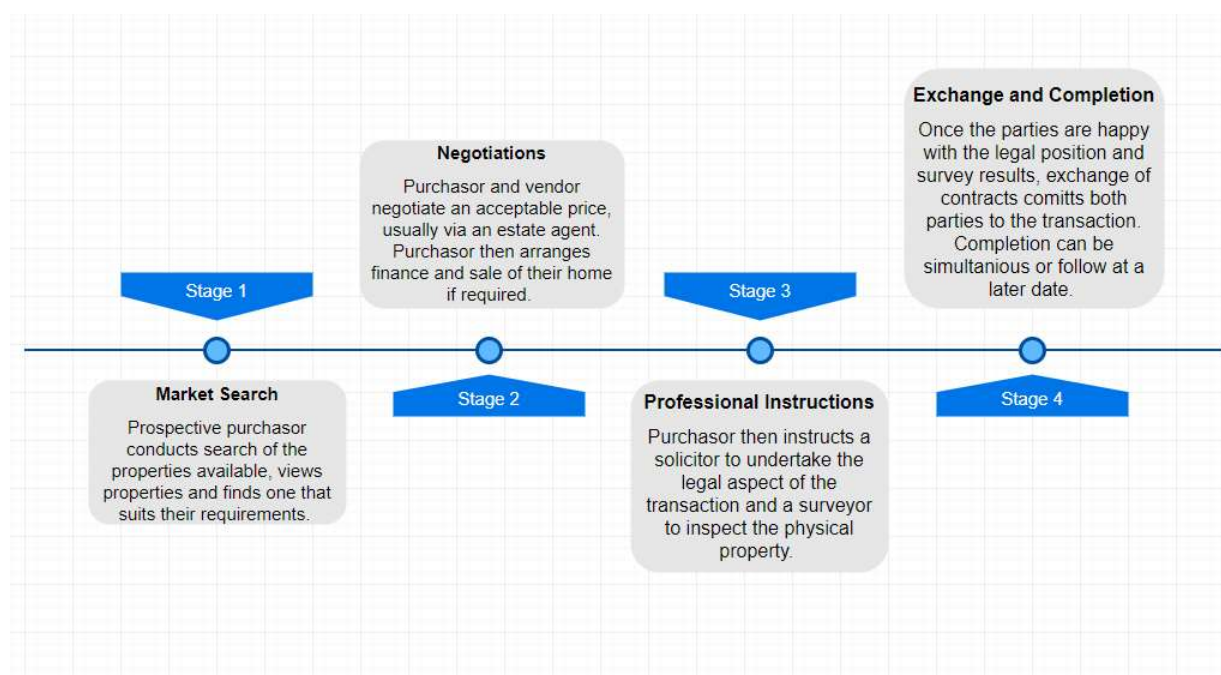


Fig. 1 – Stages of the property purchase process.

Despite it being possible to do so, depending on lender requirements, few purchasers elect to undertake their own conveyancing or survey, preferring instead to instruct professionals to provide their opinion. In their reports, surveyors often use technical language to present their findings and recommend further specialist reports be obtained. These reports contain terms that many purchasers do not understand. Subsequently, purchasers often end up proceeding with their purchase without fully understanding the reports, let alone why they may need to have additional reports prepared, and who is best placed to prepare these.

The author, a chartered surveyor who has worked in residential and commercial property for over fifteen years, is often asked to interpret survey reports or asked for property advice. One of the main reasons this author decided to retrain as a building surveyor is that he became

interested in whether or not rising damp exists. When he recorded high moisture meter readings and symptoms of rising damp in his home, he adopted a trial and error approach and was able to remedy the most significant symptoms, the causes of which were not rising damp. While this isolated example cannot prove that rising damp does or does not exist, uncertainty in the profession and conflicting remedial options is something that requires further detailed investigation.

To enhance his knowledge of the subject, the author has undertaken a literature review of specialist texts, journals, publications and videos from a number of different authorities on the subject including other surveyors, specialists in the field, industry bodies, suppliers, manufacturers and installers.

With a clear understanding of the subject and the industry recommendations, the author spoke to surveyors to investigate how theory is being put into practice when undertaking surveys and establish their thoughts on rising damp.

To determine what information is being provided to prospective homeowners, the author has gathered a sample of survey reports. The content of the reports was analysed to compare the standard of information provided, level of investigation that the surveyor has undertaken to determine any defects and the language used to convey defects.

Once a better understanding of the information that is being provided had been formulated, the author spoke to homeowners who have had a surveyor or damp specialist undertake a survey of their home. This took the form of case studies where the author looked at the survey report and specialist reports and inspected the property, followed by an interview to seek the homeowners' opinions on the advice they had received.

As has already been seen first-hand, surveyors writing "HomeBuyer" reports are recommending further investigation by damp specialists when they find high moisture meter readings. To investigate the next piece of advice that the homeowner would receive, the author arranged a number of surveys by damp specialists. Their methods of investigation and



findings were then analysed to see if they were correct and if their recommendations were understood by homeowners. This is an important part of the study as it is with this knowledge that the prospective homeowner is committing to both the purchase of the property and cost of remedial works.

Alongside desk-based research and interviews, it is important to have a practical understanding of the effects of moisture on masonry. In a laboratory at Sheffield Hallam University, testing was undertaken on damp-proof courses (DPC's), moisture transfer and porosity of masonry. The results from the porosity testing were then compared to results taken with an electronic damp meter to see if they agree.

The author hopes to establish if rising damp does exist and if the correct advice is being provided to homeowners. The aims and objectives are:

- Establish what information and recommendations surveyors are providing to homeowners.
- Examine how damp specialists are conducting their surveys and what information they are providing to homeowners.
- See if rising damp can be created in the laboratory and how effective different types of damp-proof course are.
- Compare the results from porosity and carbide testing to the results from electronic moisture meter testing to determine if the correct approach is being used to diagnose if a property has damp.

This study does not cover established physical DPC's (such as PVC, slate or bitumen), the majority of non-traditional remedial options or condensation and related issues. Instead, a brief overview will be given on the most pertinent points.

## 2 Literature Review

Existing research has tended to focus on whether or not rising damp exists, Howell (2008), or questioning the work undertaken by damp specialists, Ward (2012-19). The information being provided to prospective purchasers, how this is arrived at, whether it is correct, and how it is acted on are seemingly ignored by previous studies.

This aims and objectives of this study will be investigated in literature reviewed from five thematic groups of opinion:

1. The Royal Institution of Chartered Surveyors (RICS). Their position is that rising damp does exist (RICS, 2017) and that when surveying a property, moisture meter readings should be recorded.
2. Neutral organisations and their standards and testing, the main ones being the Building Research Establishment (BRE) and Ministry of Housing, Communities and Local Government (HCLG).
3. Surveyors who acknowledge the existence of rising damp. Literature has been taken predominantly from two sources: survey analysis undertaken for this study, and published literature from the principal authorities, Burkinshaw (2009), Hatreed (2008), Hollis and Gibson (2005) and Parnham (2011).
4. Surveyors who do not acknowledge that rising damp exists. Literature has been taken predominantly from three sources. Peter Ward of Heritage House speaks candidly on the matter in his videos and believes that rising damp does not exist at all. Michael Parrett of MPA is happy with the technical possibility of rising damp; however, he states that he has never seen a genuine case of it. And in his 2008 book, *The Rising Damp Myth*, Jeff Howell takes direct aim at the damp industry and use of electronic moisture meters.
5. Damp specialists and their range of recommendations. Often recommended as a result of a survey, the damp specialist offers a range of products said to remedy various forms of damp. These companies have the backing of a multimillion-pound industry which needs to sell to survive; as such it is difficult to see their opinions as impartial.

In addition to the above principal sources of information, industry journals, published findings, newspaper articles, videos and professional experience have all been considered.

The works of Parrett and Ward and later Howell are what drew the author into this subject area, and while their videos and books provide first-hand examples and explanations of where damp remedies have failed, their work is not without their personal bias.

These areas of opinion, together with associated research, have been examined to try and explain and answer the following points:

- What is rising damp and does it exist?
- Where does it occur?
- How do I know if I have got rising damp?
- How is rising damp recorded in surveys?
- What advice is being provided to homeowners?
- Conflict within the surveying profession about rising damp.
- How to remedy rising damp.

## 2.1 What is Rising Damp?

*I would argue that rising damp is perhaps the most commonly misdiagnosed form of damp. (Boniface, 2019).*

When a prospective homeowner receives a report advising of rising damp, they will no doubt want to gain an understanding of the implications of this and nowadays, will more than likely turn to the Internet for research.

Using Google to search for “rising damp” returns about 19,500,000 results (Fig. 2). The first two results are from damp specialists offering a “lifetime damp free guarantee” and “best rates for damp removal” (google.com).

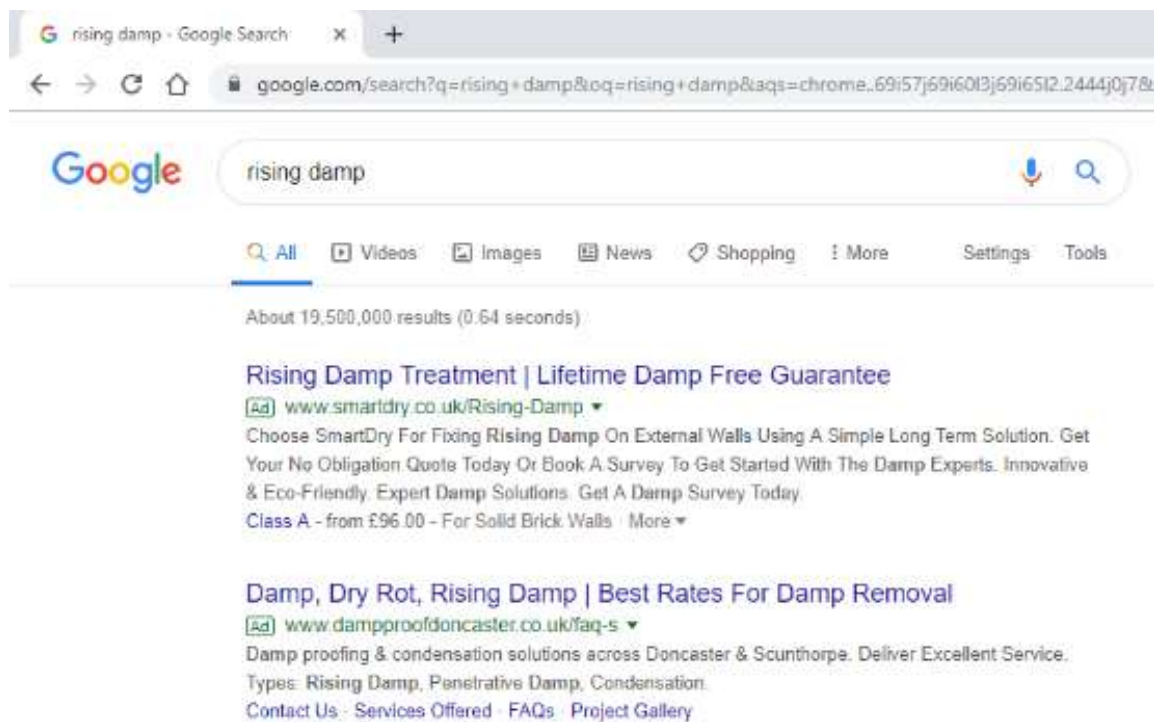


Fig. 2 – Google search results for “rising damp”.

At this point, the prospective purchaser may have the feeling that they have entered a minefield of information and competing claims. Perhaps a more practical description can be gained from Parrett, (2016, p28): *“rising damp is moisture that has moved vertically upwards from the ground below the building by capillary action or suction”*.

## 2.2 Does Rising Damp Exist?

While Parrett demonstrates a technical understanding of what rising damp is, in his Building Pathology DVD series, he comments to viewers that in 25 years and during 35,000 surveys, he has never found a single genuine case. Parrett is highly regarded in the profession; however, based on working 225 days a year for 25 years, that is six cases a day being solved which when, as his video advises, he works internationally, seems like a tall order and could discredit his thoughts somewhat.

Ward supports Parrott's theory and regularly brings this to the attention of the viewers of his YouTube channel ([youtube.com/user/stibnite11](https://www.youtube.com/user/stibnite11)) and readers of his website, stating that "*Rising Damp was invented by the chemical industry*" (Fig. 3).

## The Fraud of Rising Damp

Rising Damp was invented by the chemical industry. In a particular chemical industry boardroom in 1962 actually. When the first damp meter was invented and some very astute con man realised they could make millions. I know, because I've spoken to a man who was in that meeting. Have you never wondered why rising damp isn't in America? Or France, or Germany? You don't walk down the streets of French and German cities seeing ugly injection holes everywhere do you? No - because they aren't so daft as to be conned by chemical fraudsters.

Fig. 3 – Screenshot from Heritage House Conservation website.

Ward has also debated this with his viewers, for example in 2016:

*User JD: How can you be sure it wasn't rising damp and that it [moisture in sole plate] is caused by condensation?*

*Peter Ward [PW]: Because rising damp has not, and never will exist, the timber sole plate is dry [sic] and never been wet...*

*User PR: How often have you seen raising [sic] damp?*

*PW: Never – and we do many hundreds of surveys a year...*

Ward's advice is given in the context of a practical example and his solutions often offer a credible alternative approach to the damp specialists.

Architect Terry Brown of GMW partially disagrees with Ward and commented in Architects' Journal in 2009:

*'It's right to question the diagnostic skills of commercial damp proofing firms, but to state categorically there is no such thing as rising damp undermines a whole litany of rules of brickwork detailing, I've adhered to all my professional life.'*

Although not a surveyor, it is often the architect that specifies the DPC and ensures conformity to Building Regulations so their comments are considered to be well justified.

The Building Research Establishment conduct scientific testing on materials and are held in high regard. Once part of the government, it has been charitably owned since 1997 (BRE History, n.d.). The BRE are of the opinion that rising damp does exist, and in Expert Opinion 7 (2005), describe it as *"visible wetting of the walls, blistering paint, bulging plaster, sulphate attack and mould usually accompanied by a musty smell"*. Whilst this article is over ten years old, the symptoms described have not changed and their observations hold true today.

The BRE's opinion is echoed by Williams (2008, p42) who comments *"Rising damp occurs when relatively porous walls are built in saturated soil, causing moisture to rise by capillary action. Where the soil is not saturated, the capillary action is countered by the suction of the soil. Where the soil suction is greater than the capillary pressure, no rising damp will occur"*.

Being an accomplished author, former BBC journalist and former Technical Director of The Architects' Journal, Williams is an interesting and reliable source.

Chartered surveyors are bound by the requirements of their professional body, the RICS. In their 'Rising Damp – Myth or Fact' advice they comment *"Some writers claim that 'rising damp' is a myth. Although rising damp can be difficult to confirm, this claim does not hold true. Moisture does travel upwards through a porous material – through the pore structure, or via small fissures or cracks, or as water vapour – against the force of gravity"*. (isurv n.d.). Advice provided by the RICS should be reliable as its members are required to follow it. Their statement could however go further and refer readers to the BRE.

### 2.3 Where Does Rising Damp Occur?

“Dampness (in all its forms) is the most frequently reported cause of building defect in the UK”. (Burkinshaw & Parrett, 2008, vii).

In his article, Damp Detective, Parrett (2016, P28) lists examples of causes of damp on internal walls citing building design, defects or occupier’s use as possibilities. After previously stating that he had never seen rising damp, in this article he states that “...Victorian properties with chimneys rarely have a physical DPC to fender walls... which means these then act as conduits for upward moisture travel”. Parrett does appear to contradict himself here, which could discredit his earlier opinion somewhat.

There are 23.9 million homes in England.

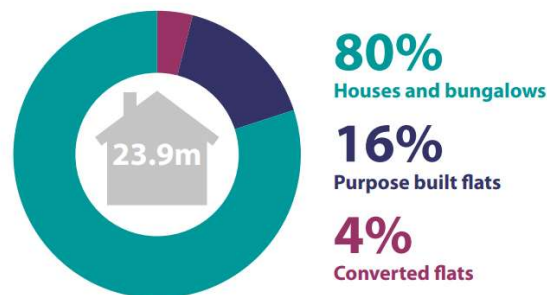


Fig. 4 – English Housing Survey – Stock Profile Report, 2017.

According to EHS, between 2015 and 2017, thirty percent of the twenty-three million households in England (Fig. 4) reported an issue with damp (2017, p28). This figure is in stark contrast to the four percent of households that had damp when physically inspected. This information is based on interview data and physical surveys undertaken by chartered surveyors (EHS 2017, p28). The sample has been rounded and applied as a percentage of the total housing stock. This data was then broken down further into different categories (Table 1).

Table One - Homes in England Affected by Damp		
Type of Damp	Percentage	Homes Affected
Condensation	2%	510,000
Penetrating Damp	1%	309,000
Risign Damp	1%	307,000

One fifth of the housing stock in England was built before 1919 and it was this age of property that was most likely to have damp, making up eight percent, with six percent of these homes being terraced houses (EHS 2017, p23).

These figures are published by the government based on a random sample. This sample is then interviewed face-to-face, with a further sample being selected for a physical survey by a chartered surveyor. In theory, this is an excellent way to gather primary data – the data is collected by a chartered surveyor and endorsed by the Government. Unfortunately, the data gathered is based on a sample to which weighting is then applied in order to reflect the housing stock as a whole. The 2015-2017 report is based on interviews with 13,300 households with 6,200 of these being physically inspected. Whilst weighting is not ideal, it is clearly not practical to survey every home in England and as such, this is probably the best data from the most reliable source.



## 2.4 How do I know If I Have Got Rising Damp?

*“One in every ten people over the age of 50 complains of damp rising in floors and walls. But records of people’s perceptions and complaints may be misleading, given that damp appears to have been all but eliminated in modern properties”.* (Williams, A. 2008, P1).

### 2.4.1 Visual

In its 2017 article ‘How To: Deal with Damp’, the RICS advises that the main symptoms are tide marks on the walls, damaged skirting boards, peeling paint or wallpaper and wet patches. The RICS fails to mention things like the associated smell, salt and cold patches on the walls which are picked up by Hetreed (2008), who advises in addition to the above, a whole range of moulds and fungi (which tend to only be a problem with a high RH) as symptoms.

### 2.4.2 Testing

This point should maybe expand to ‘testing for what’.

Confusion between testing for moisture and testing for rising damp is perhaps the area of most contention in the profession. This is perhaps predominately caused by the instruments that are used when surveying a property. Many surveyors will use an electronic moisture meter to test walls – some for presence of moisture and some for rising damp. These meters only measure electrical resistance and high readings should not be noted on the report as rising damp. In theory, this is something at least that most parties agree on, commenting as follows:

*“A word of caution: moisture meters measure conductivity, so they are influenced by the presence of electrolytes (salts) and metals, and also by the presence of carbonaceous materials. Carbon is a good electrical conductor... and so may cause moisture meters to record very high readings ... when the material is not actually significantly damp”* (isurv, n.d.).

*“The industry standard for checking dampness at low level on ground floor skirtings and walls is to use an electrical resistance meter... these are calibrated to timber so are not accurate when we stray from timber into walls and can only be used as an indicator... [you] have to be careful with these instruments as they can give a high reading off of a range of other materials. Salts can be common to brickwork that has been historically wet but is now dry...”* (Parrett, 2006).

*“One must question the seriousness of the moisture level, if the only ‘evidence’ is a reading from a moisture meter”.* (Boniface, 2019).

In his video ‘damp.mp4’, Ward shows how the meter goes from reading zero moisture on a natural surface to high moisture when the meter is put on a painted surface. It does this because of the lead oxide in the paint illustrating a valuable lesson for the uninformed user. In ‘The damp meter – how the damp industry defrauds the public...Part 1’ (2014) Ward shows viewers the effects of putting the probes of a Protimeter into a dry bag of salt – the indicator goes up to amber adding further valuable context to the limitations of the meter.

Other instruments that should be used to establish if there is a damp problem are:

- Thermal imaging camera. This helps to track cold areas across the wall and is useful in determining where there may be thermal bridging.
- Thermo-hygrometer. This tests moisture in the air by measuring relative humidity. RH of around 60% is normal, 75% and above and mould will start appearing. The meter should be left in position for a minimum of 30 minutes to reach equilibrium.
- Salt and nitrates tests. These detect salts and nitrates, the presence of which could indicate that moisture is coming up from the soil and would indicate rising damp.
- Calcium carbide test. This is the most reliable way of testing if there is moisture in the masonry. Testing is ‘destructive’ and requires a series of 9mm holes to be drilled in the wall, samples taken, weighed and shaken in a flask with two spoons of calcium carbide. Any moisture in the sample reacts with the carbide to produce acetylene gas, the pressure of which causes the needle to move on the gauge and gives the moisture content. The BRE advise that a moisture content of less than 9% is acceptable. This is looked into in more detail in sections 3 and 4.
- BRE 466 recommends another easy way to determine whether symptoms are due to damp or condensation – stick 0.5 m<sup>2</sup> of foil over the surface in question, seal around the edges with tape. Inspect the next day; if moisture has collected on the underside of the foil it is damp, if it is on the outside of the foil it is condensation.

## 2.5 How is Rising Damp Recorded and What Advice is Provided to Homeowners?

*Accurate measurements of the moisture content of brick or mortar cannot be obtained by the use of electrical moisture meters because the presence of salts increases the electrical conductance of the water, giving falsely high readings. Gravimetric methods carried out on samples taken from the fabric give the most reliable results. The use of chemical absorption type moisture meters will give a result in a short space of time and be almost as reliable.*

Fig. 5 – Extract from BS 5250:2011.

Unless positive gravimetric testing has been undertaken, it would not be prudent to record rising damp in a survey (Fig 5). If using an electronic moisture meter, and high readings are observed, this is what should be recorded, not rising damp. Members of the RICS should use their skills to diagnose defects and produce reliable consistent reports for their clients. It has been observed whilst analysing survey reports for this study that some reports lack consistency and surveyors are referring their clients to specialists in order to diagnose damp. This theory is mirrored by a number of professionals:

*“A surveyor will often examine building elements using only an electrical resistance or capacitance meter. If they obtain high readings, they will recommend that the client contacts a “bona fide damp-proofing specialist” – merely a member of a commercial trade organisation who benefits financially from their own diagnosis...”. (Parrett 2016, p28).*

*“These recommendations frequently result in a survey from ‘damp specialist’ usually a company anxious to sell rising damp treatment. Some such firms are satisfied that, if a surveyor has reported suspected rising damp, it is justifiable to specify an injection damp-proof course when such treatment may in fact be unnecessary”. (Rickards, 1987 p233).*

Rickards was an independent damp consultant and on the council of BWPA (now PCA), and although this article is three decades old, his comments remain justified today. Rickards also produced a ‘crib sheet’ for surveyors investigating damp (Fig. 6).

Checklist				
Tidemark on wall (Salt present)	Rising damp		External levels within or above 75 mm of dpc	Penetrating damp
Black mould growth	Condensation or penetrating damp		Faulty rainwater goods	Penetrating damp
Elf Cup Fungus	Penetrating damp		Building vacant all day with windows shut	Condensation
<i>Pin-type meter readings</i>			Paraffin or propane gas heating	Condensation
0%–40% (timber scale)	Insignificant		No visible damp	Probably not rising damp
40%–70%	Condensation or minor penetrating damp (rising damp remotely possible)		Patch of saturated plaster	Leaking plumbing/leaking rainwater goods or hygroscopicity
70%–100%	Rising damp possible		Cracked plinth not keyed to wall at top	Penetrating damp
<i>Solid floors</i>			Unventilated, unused flue	Condensation (sulphates maybe present)
Narrow band of readings above skirtings	Damp proof course bridged by internal render/plaster		Faulty flashings	Penetrating damp (often evident internally at lower level)
<i>Cavity walls</i>			Perished pointing	Penetrating damp
Narrow band of readings above skirtings	Damp proof course bridged in cavity (injection not reliable)		Spalled brickwork	Penetrating damp

Fig. 6 – Crib sheet detailing what to inspect then checking for damp.

If the incorrect information is being recorded in surveys, then the incorrect information is being provided to homeowners. In order to see if the above theory holds true, sixteen surveys are analysed in section 4.1. Fig. 7 shows a screen shot of advice given by a surveyor in one of Ward's videos. The surveyor notes the high readings, attributes them to there being either a failed or no DPC, but then recommends a further specialist report.

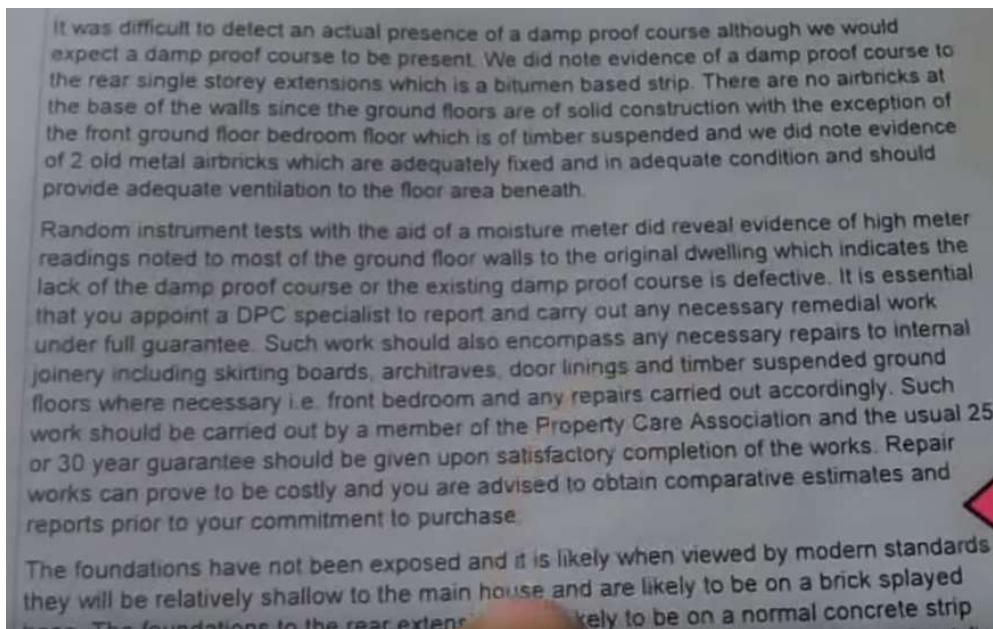


Fig. 7 – Survey report taken from 'Busting the damp myth – an incompetent rics [sic] surveyor, and peter cox' 2014, August 14.

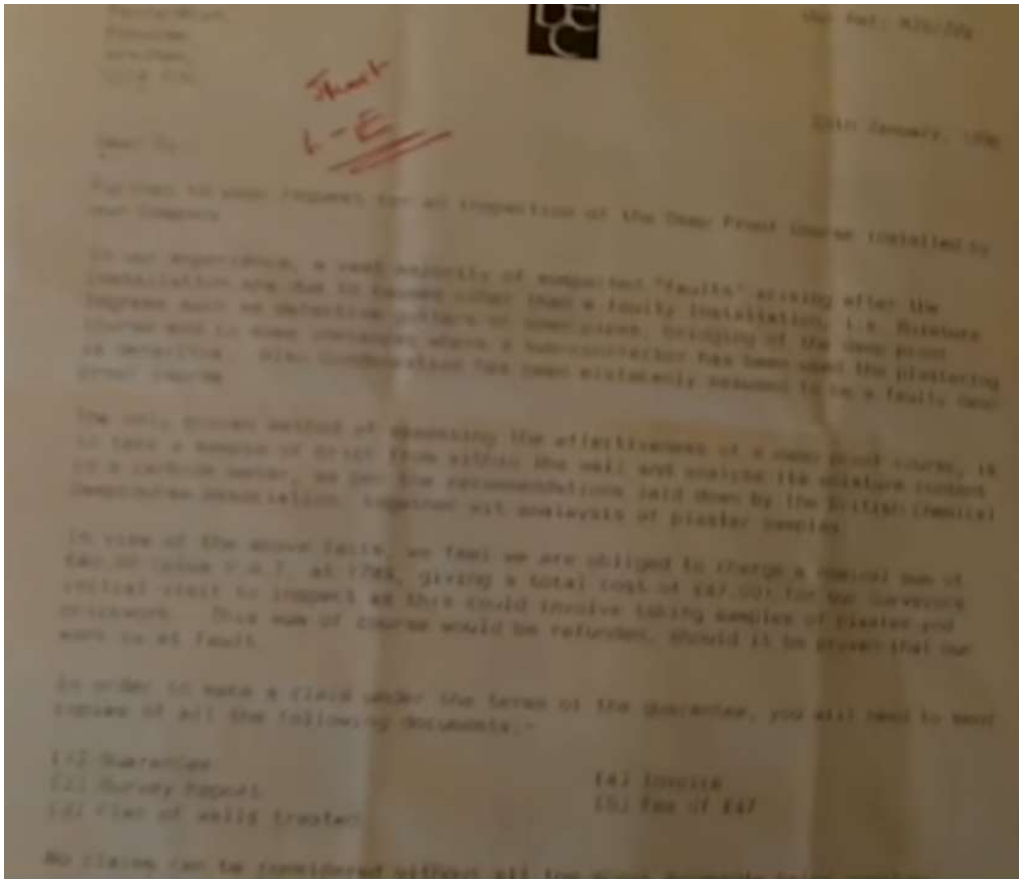


Fig. 8 – Letter from Lectros taken from ‘Lectros Electro Osmotic damp course Case Study’ 2014, December 8.

Unfortunately, the quality of this letter (Fig. 8) is poor, however it is read out in the video. A homeowner was advised to have an electro-osmotic system installed in their home. The system did not work and the customer tried to claim under the guarantee. They were advised that there would be a charge for the company to come out and inspect the walls and they would conduct a test with a carbide meter. The homeowner has been sold the system on the basis of an electronic moisture meter-based survey, but to claim on the guarantee, they have been advised they need to have carbide testing.

This type of advice is discussed again later in the study.

## 2.6 Confusion Within the Surveying Profession

*“For the fact is that rising damp is a mythical building defect...Rising damp is “diagnosed” by the misuse of electrical moisture meters by Chartered Surveyors, and by commission based salesman for the damp-proofing companies...” (Howell, 2008).*

The RICS has acknowledged the rising damp debate, but is reluctant to side with either group and advises *“dampness is a subject littered with misconceptions and confusions over terminology and thinking”* (isurv, n.d.).

While the RICS state that there are misconceptions and confusion, they do confirm that rising damp exists explaining *“some writers claim that ‘rising damp’ is a myth. Although rising damp can be difficult to confirm, this claim does not hold true”* (isurv, n.d.).

The RICS governs the surveying profession, however Ward is critical of their stance and in 2016 commented *“The RICS is a big part of the problem for allowing surveyors to use [electronic] ‘damp meters’ instead of training them properly. 3 British standards say they cannot be used. BS 7913, 5250 and 6576 all say chemical methods are the only way [to test for rising damp]”*. When explaining his own testing methods in his ‘Equipment’ video in 2014 he stated:

*“[I] never use the two pronged ‘damp’ meters myself... The RICS stipulate their use but I will never use one in the course of a survey. Amazing that they continue to do so, given the ample evidence that they are misleading. I just don’t get the RICS – they have an opportunity to improve but won’t.”*

Having spoken to Ward as part of this study, he says that he is currently working closely with the RICS and that imminent change is afoot.

The Property Care Association is the trade body for the damp-proofing industry. In 2017 they published ‘Investigation and Control of Dampness in Buildings’ which advised their members:

*“The proper and educated use of an electrical moisture meter can give a useful indication as to the existence of rising damp but cannot give absolute proof, especially where remedial works have been previously carried out. The limitations of an electronic moisture meter must be understood by the surveyor.”*

In section 4 a number of PCA members reports are analysed and contradict the advice given above. It is difficult to establish any credibility in the PCA's advice – their members predominantly use electronic moisture meters to survey their customers homes, from these surveys, they generate work and use their income to pay for their PCA membership fees. If the PCA advised against the use of or banned their members from using electronic moisture meters, there would no doubt be a significant drop in members and associated membership fee income for them. The author telephoned the PCA to find out how many members they represent, but was advised that they did not know.

Andrew Waller, Surveying Partner at Strutt & Parker summarised the position in a 2002 Sunday Times article by Nicola Venning stating:

*“Unfortunately, the damp-proof industry has a bad reputation, which is not entirely unfounded. They will go into a person’s house and recommend work that is not necessary. You need a surveyor who will think of all potential causes of damp in a building, such as high ground levels, leaking pipes or an overflowing gully. Quite often, if you alleviate physical and maintenance problems, the dampness will go away and you won’t need an expensive DPC.”*

## 2.7 How to Remedy Rising Damp

*“...Physical DPC insertion – this is the only fully reliable and potentially permanent method of retrofitting a DPC, but it is a slow and laborious process and therefore relatively expensive.”* (Hetreed, 2012, p23).

As discussed in the introduction, this study is not focusing on all of the different remedial options in the market. Below is a brief overview of some of the perhaps more controversial systems.

### 2.7.1 Chemical Injection and Tanking

*“True rising damp is a myth and chemically injected damp proof courses are a complete waste of money”.* (Boniface, 2011).

As previous chairman of a number of RICS Advisory Groups, Boniface’s comments should be given a reasonable amount of credibility. As chemical injection DPC’s form part of the case studies in sections 3 and 4, this system will be discussed in more detail later on.

### 2.7.2 Evaporation Systems

*“Laboratory experiments and field tests have been carried out. Results indicate that no useful increase in the rate of evaporation of moisture results from the use of these tubes”.* (BRS, 1930).

These systems go under several names, for example, The Schrijver System, Wallguard, Knappen Tubes and Holland Damp Proofing, although the latter company was dissolved in December 2016 (<https://beta.companieshouse.gov.uk/company/03880387>). Interestingly, the Director, Evert Frederick De Graaf, is also the Director of Schrijver Systeem Damp Control UK Limited. As the evaporation systems are lesser known, some photographic examples of the different systems are shown in Fig. 9.





Fig. 9 – Photos of evaporation systems (photos used with permission from Heritage House).

This system is described by the manufacturer as a *'natural and permanent solution to problems caused by rising damp and condensation and removes any excess moisture from the building.'* The theory behind the systems is that moisture will be drawn to the various different types of ceramic brick/tube and then evaporate out leaving the house dry (as seen in Fig. 10). The theory sounds plausible; however, the tubes are bedded in cement which as it is impermeable, does not allow water to travel through it.

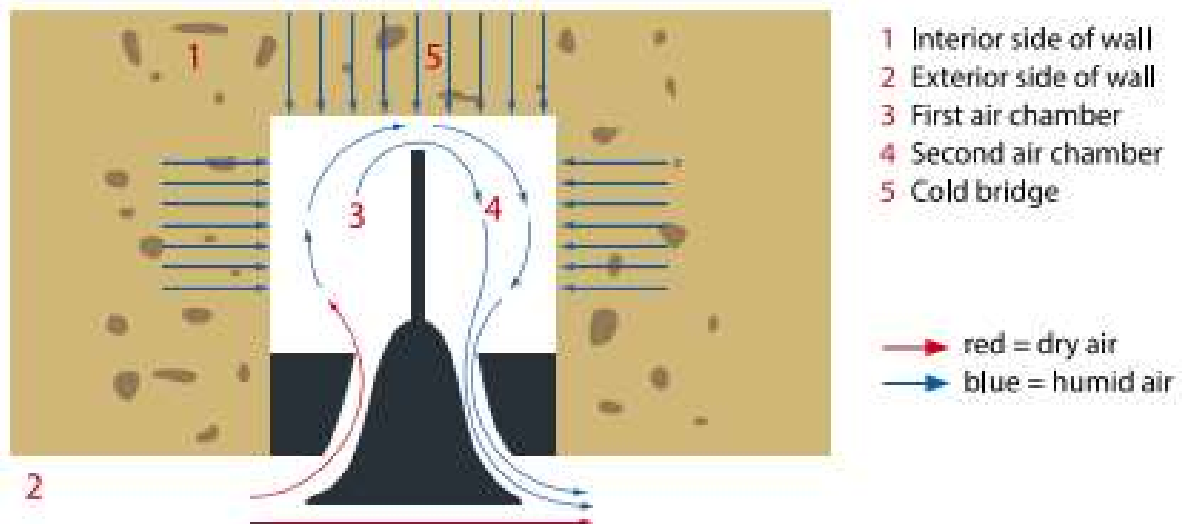


Fig. 10 – How it works - Schrijver System.

These manufacturers state that their system has been independently tested, but no credible evidence can be found to prove this. As far back as 1930, the BRS (now the BRE) commented on the ineffectiveness of the system. Sixty years later, the manufacturers still did not have enough evidence to prove the effectiveness of their system and were reprimanded by the UK Advertising Standards Agency (ASA) who stated:

*“The advertisers had proved neither that the Schrijver System stopped rising damp, nor that it reduced the moisture content caused by penetrating damp, condensation and mould”.* (Howell, 2008).

As the ASA is a neutral party and regulatory body, their observations are reliable evidence as to the performance of the system. The manufacturers also state that they have won prizes for their system and whilst this is correct, one of these competitions, ‘ABN-AMRO’ is a competition for business achievements, and the other is ‘National Suggestion Box’ where the winning ‘invention’ is voted for by a TV studio jury (Howell, 1998, p 84). These ‘wins’ provide no credible evidence as to the effectiveness of the product in stopping damp.

The ‘lifetime guarantee’ of the product also appears to be fraught with problems as one customer discovered in 2006 (Fig. 11)

## **Damp patches risk legal action**

**My 200-year-old brick house has several damp patches. Early last year I contacted Dutch firm Frank Schrijver UK, based in Croydon. It guaranteed that if after 12 months there was no improvement, my money would be refunded.**

**The work cost £2,963, but 12 months later there was no improvement, even though I followed the procedures laid down by the firm. Schrijver came to inspect the property in January. He agreed it was still very damp and said he would contact me after speaking to his surveyor.**

**I heard nothing from him, but after persistent calls I finally spoke to him. He washed his hands of any responsibility and claimed that I had failed to maintain the property properly.**

**Since then I have heard nothing and he has not replied to my letters, or one from my solicitor. I would like to avoid court action. What would you advise?**

### **ER, Lincolnshire**

Schrijver claims the work it did was effective. Its surveyor says a missing drainpipe and faulty pointing caused the damp, but why it did not spot these when it did the work 18 months ago is unclear. Once the pipe and pointing are fixed, your wall will dry out, they say. And they are not going to refund your money.

Schrijver is basing its stance on its own surveyor's report. You would prefer an independent surveyor but Schrijver says this is against its terms and conditions. It says it offers a guarantee on work completed, but would not give us a copy of the contract to review.

One non-court option might be mediation, but Schrijver would have to cooperate. The National Mediation Helpline is 0845 603 0809 or you can get details from [nationalmediationhelpline.com](http://nationalmediationhelpline.com). This would cost £125 for each party, plus VAT.

Fig. 11 – Damp Patches Risk Legal Action. Guardian Article (2006, June 17).

To conclude, there is no credible evidence that would support having this system installed to remedy any damp issues and to claim on the guarantee, the onus is put back on the customer to have all other areas of damp remedied first.

### 2.7.3 Electro Osmosis

*“It is a total waste of time and money. Not approved by any British authority, installed to solve a problem that clearly did not exist. These snake oil systems are fraud. All part of the giant Damp Con.”* Rentokil Damp Course (Ward, 2014, November 18).

The use of the electro-osmotic damp proof system has substantially reduced since Rentokil exited the market. One company still offering the system is Lectros who advise that the system *“Introduces a small and very safe electrical current through walls suffering from rising damp. This current repels the rising moisture down the wall and prevents it from returning, ensuring walls remain dry”* (ykamol.com n.d.).

To say that they are the manufacturer and retailer of this system, there is very little information on their website as to how the system works, save for a silent video (screenshot shown in Fig. 12) which is almost childlike in its simplicity and shows a wire being attached to a wall, and connected to an earth rod which then draws water from the base of the wall towards it. The video does, however, describe the system as scientific but offers nothing to back this up. The manufacturer also produced a brochure (Lectros, 2010) referring to the system as scientific.



Fig. 12 – Scientific claims made by Lectros International Limited.

Established sources counter the manufacturers' claims. The Society for the Protection of Ancient Buildings reported on the system in Control of Damp in Buildings (1992) advising that

*“in practice there is very little evidence that they (electro osmotic systems) are successful”.* Although this article is dated, it was backed up in 2004 by BRE Report 266 which advises *“...neither the active or passive systems has been approved by any recognised laboratory”* and further adds that *“...their effectiveness has not been demonstrated in the laboratory and field evidence is disappointing...electro-osmotic systems are not effective in preventing rising damp in walls”*. Neither of these credible sources have been countered by the manufacturers.

A simple and scientific way that the manufacturers could prove their system could be to take periodic readings of the temperature, relative humidity and absolute humidity to see if a decrease in RH and AH could be noted once the system had been installed.

Ward has also made several critical comments about the system, surmising *“Avoid Lectros electro osmotic damp courses like the plague – they don’t work, never have, and are pure fraud.”* (2016, April 27).

In conclusion, there seems to be no credible evidence to suggest that having this system installed would be of any benefit.



### 3 Data Collection

Collis and Hussy write that “*Methodological Triangulation – is where more than one method is used to collect and/or analyse data...*” (2009, p72).

For this study, laboratory testing, targeted research and interviews were considered to be the best way to achieve reliable and credible qualitative data to meet the aims and objectives of the study. Undertaking wider questionnaire type research of the general public was discounted because it would not produce enough reliable or relevant results in the four-month timeframe.

Primary data collection has been undertaken by six principal means:

- Examining surveys.
- Case studies on homes where rising damp has been diagnosed, including interviewing homeowners.
- Rigging up a ‘test house’ for damp specialists to inspect.
- Interviews with chartered surveyors.
- Laboratory testing of moisture transfer in masonry.
- Laboratory testing of porosity in masonry.

Secondary data was collected as part of the literature review. Survey report data is discussed in more detail in section 4.

### 3.1 Surveys

The advice provided to a prospective homeowner by a surveyor could be fundamental in their decision to proceed with the purchase. With the publicised shortage of valuers, the author has seen first-hand the volume of work that some panel firms expect their valuers to undertake – eight surveys a day is not uncommon. The author's theory is backed up by the RICS who write:

*“In the modern technological world of deadlines and highly competitive forces it is possible to lose sight of what is actually required of the valuation. Not only can ‘corners be cut’ but valuable information is being omitted that a client needs to know in order to assess the true risk of that property... (isurv, n.d.).*

To establish what information is being provided to homeowners by surveyors, examples were needed. Some of the information such as price paid was considered confidential and as such data collection was restricted to contacts where a relationship already existed. This was then refined further to those with the target house type and nineteen contacts were approached. In total, sixteen surveys were collected. Addresses have not been used, and properties are referred to as one, two, three etc. The data collected is summarised in Table 2.

Table 2 – Summary of Surveys Collected.

Property Number	Survey Type	Property Age	Wall Construction	Damp Noted?	Where in Survey?
One	Valuation	1935	Not noted	n/a	n/a
Two	Building Survey	Not given	Solid, rubble filled	Yes	Own Section
Three	HomeBuyer Report	1970	Cavity	No	E4 - Main Walls
Four	L2 Condition Report	Not given	Solid	No	n/a
Five	HomeBuyer Report - Survey and Valuation	1887	Solid	n/a	Various
Six	HomeBuyer Report - Survey and Valuation	1904	solid		E4 - Main Walls
Seven	Colleys Property Check	1925	Cavity	Yes	Various
Eight	Building Survey	1920-30s	Cavity	No	n/a
Nine	HomeBuyer Report	1900	Solid	Yes	E4 - Main Walls
Ten	HomeBuyer Report	1910	solid	Yes	E4 - Main Walls
Eleven	HomeBuyer Report - Survey and Valuation	1990	Cavity	No	n/a
Twelve	HomeBuyer Report	1910	Solid	Yes	F3 - Walls and Partitions
Thirteen	HomeBuyer Report	1908	Solid	Yes	E4 - Main Walls
Fourteen	Building Survey	Not given	Solid	Yes	Main Walls - Dampness
Fifteen	Letter	Not given	Solid	Yes	Written
Sixteen	HomeBuyer Report	1930's	Solid	No	n/a

Of the sixteen surveys collected, ten recorded issues relating to damp and a further one made an interesting related comment. So that the advice given can be analysed, the reports where there is no advice given about damp have not been reviewed further in this study. Survey data will be analysed further in section 4.



### 3.2 Case Studies

To establish if homeowners are receiving the correct advice and understand this advice, and to explore how they have acted on this information, one-to-one interviews with homeowners were deemed to be the preferred option of first-hand data collection. It was determined that the objectives could not have been achieved by, for example, sending out a more generic questionnaire/survey to a wide catchment of participants, most of whose experience would not have been relevant for this study.

Due to the sensitive nature of the data needed, it was determined that interviews and data collection would be best suited to participants with whom there was already an existing relationship. After considering the types of property suitable for the study and homeownership amongst suitable possible participants, three were asked to take part and were sent the completed Participant Information Sheets and Participant Consent Forms (see Appendix E and F). The three participants all agreed to take part in the study (only one case study and the test house have been used in the final write-up).

By taking this approach, it was possible to review the initial survey report (examples can be found in Appendix A, B and C) that they had prepared on the property, review the report provided by the damp specialist, if applicable (see Appendix D) and then inspect the property. From here, individual questions could be tailored to the findings and participant and then asked at the interview (examples can be found in Appendix G). So that the participants could be as expressive as possible, it was decided that a semi-structured interview would be best as this would allow the interviewer to ask questions that meet the aims and objectives of the study while allowing the interviewee to discuss things that they think relevant.

As each property, survey and recommendation report were different, a direct comparison of interview answers was not possible, and as such, similarities in information will be analysed to form an overall opinion of the information provided. Coding was also considered, but rejected as it was not seen as a superior way of presenting the information.

Although time-consuming, this targeted approach enabled the collection of the best-quality data to match the objectives of the study.

When analysing HomeBuyer surveys, a number recommended further investigation by a damp specialist. To establish what that investigation entails and what information these specialists are providing to prospective homeowners, the author used his own home as a case study so that this primary data could be gathered and subsequently analysed. This valuable data was needed to complete the analysis of the information that the homeowner would receive as part of the prospective purchase of their property and to see if their inspections and advice tied up with what the chartered surveyors expected them to provide. After careful consideration, it was decided that this was the only way to collect this data and receive the results in an unbiased way.

The information that the damp specialists provided pre-survey, during the survey and after the survey has been collated and analysed in section 4 to see whether or not comparisons can be established.

To maintain anonymity, the addresses have been changed to 'Case Study One' etc. and the damp specialists have been renamed 'Specialist One' etc. Names have also been removed from figures and related items in the Appendices.

### 3.2.1 Case Study One

This property is a Victorian terrace house of solid wall construction (Fig. 13) and was built without a DPC.



Fig. 13 – Case Study One.

The property had a chemical injection DPC installed into the bricks (as opposed to mortar course) sometime before the current homeowner purchased the property in 2014.

During the purchase process, the homeowner had a HomeBuyer report prepared on the property. This made comments about rising damp and recommended further investigation by a specialist. The homeowner did not instruct a specialist report until symptoms of damp started showing in 2016. A report was prepared by a national company that recommended a chemical injection DPC and replastering which was subsequently instructed. The homeowner is happy with the work and reassured by the 20-year guarantee.

### 3.2.2 Case Study Two

This property is the author's home which was purchased in 2006 and is shown in Fig. 14. A pre-purchase survey (prepared before The RICS introduced the new style HBR) was undertaken by a surveyor which recommended further investigations by a damp specialist.



Fig. 14 – Case Study Two.

The specialist recommended a chemical injection DPC together with other works. These were undertaken following the purchase. Around four years ago, signs of damp were noted in the front room (see Fig. 21). The company that undertook the works were contacted to claim under the guarantee. They advised that there would be a reinspection fee for them to re-survey the problem which was not acceptable. As the patches were contained and the damage was not significant, a trial and error process of solving the problem was adopted. The following six defects were found to be causing the damp:

### Defect One – Pointing

There was an area of missing pointing on the party wall. Rain has been bouncing up off the coping stone onto the mortar joint, and this has gradually eroded the pointing. A temporary fix was carried out by filling the joint with silicone after a prolonged period of dry weather.



Fig. 15 – Pointing to the party wall above the front LHS boundary wall.

### Defect Two – Left Hand Boundary Wall

The boundary wall abuts the front elevation (Fig. 16). When water gets down the back, it has no way to escape and thus can cause areas of penetrating damp. There is no quick fix to this problem. The most efficient way of mitigating this problem would be to ensure that the pointing is sound where the coping stone meets the front elevation and to drill some weep holes near the bottom of the wall to ensure that trapped moisture can escape.

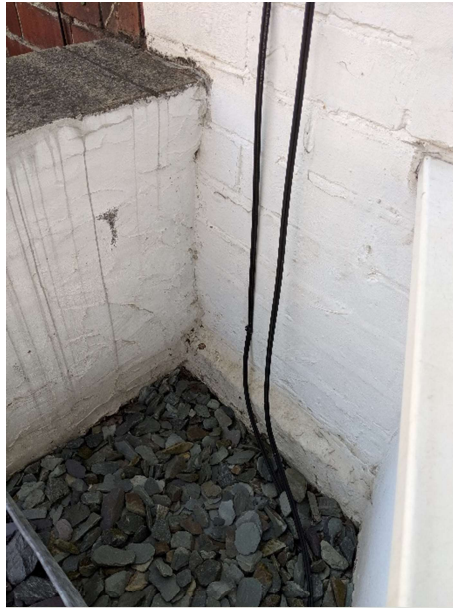


Fig. 16 – The LHS front boundary wall abuts the front elevation.

#### Defect Three – Window Trim

The original timber casement bay window has been replaced with a uPVC one. To keep the installation weathertight, it was necessary to use uPVC trim bar (Fig. 17). These trim pieces are affixed with dabs of silicone and then sealed with silicone around the edges. Silicone is prone to UV degradation (GCRIO, (n.d.)) and can dry out and shrink/crack. This happened on the subject window, leaving the bottom piece of trim loose, and no longer preventing weather ingress behind the frame. This was remedied with a cartridge of silicone.





Fig. 17 – uPVC window trim.

#### Defect Four – Right Hand Boundary Wall

Fig. 18 shows the abutment detail, the defect is as per the Left-Hand Boundary wall above.



Fig. 18 – The RHS front boundary wall abuts the front elevation.

### Defect Five – Fall Pipe

When the property was purchased, the fall pipe for the bay window guttering stopped halfway down the front elevation (Fig. 19) which would have caused penetrating damp to the surrounding area. This defect was addressed by replacing the fall pipe and fitting a ninety-degree elbow at the bottom. Although this stopped the penetrating damp, during heavy rainfall water ponded in the front garden at the bottom of the pipe as there is no drain. This was remedied with the use of a water butt attachment (Fig. 19) which now takes the water from the fall pipe to the drain in the front garden wall.



Fig. 19 – Missing bottom section of fall pipe (left) and water butt connection modification to fall pipe (right).

### Defect Six – Adjoining Property Ground Level

The property adjoining the subject property sits approximately 300mm higher (Fig. 20). There is no practical way to address this defect.





Fig. 20 – The property next to the subject is circa 300mm higher.

Although the walls appear to have dried out (at this point they have not been tested with a calcium carbide meter), redecoration has not been undertaken, as such some of the signs of damp remain (Fig. 21).



Fig. 21 – Signs of Damp on living room wall.

The current conditions mimic those at the point of purchase and as such are considered to represent a good example of the situation a prospective purchaser may be recommended to have a specialist report on. To establish if there was still a problem, damp specialists were invited to survey the property.

To assess the damp specialists' investigation skills, the defects above were recreated. The purpose of this was to see if the specialists noted the defects and recommend maintenance to remedy the defects or a new DPC and replastering.

### Defect One

The silicone from the party wall joint was cut out to leave an exposed mortar joint (Fig. 22). This created a very visible defect that is above an area of peeling paint on the inside wall and as such should be a simple defect to identify.



Fig. 22 – Silicone removal to reveal exposed joint.

### Defect Three

The silicone around the uPVC trim was cut out and the trim piece was left loose with a visible gap between this and the frame (Fig. 23). This was harder to identify from further away, but it is directly in front of the area of brown staining on the inside of the bay window (Fig. 23).



Fig. 23 – The silicone bead sealing the window trim to the frame has been removed to leave the trim loose (left) and brown staining to the finish on the inside of the bay window (right).

#### Defect Five

The water butt connector was removed from the bottom of the fall pipe so that it was easy to see that it discharged at the foot of the wall (Fig. 24).



Fig. 24 – Fall pipe with water butt connector removed.

In addition to the defects above, there are two other factors that should be considered in the specialist's survey:

- Existing chemical injection DPC present along all external elevations of the property.
- The masonry part of the bay window has been rebuilt in blockwork and render at some point. This part of the house has a PVC DPC.

With the property set up as above, seven damp specialists were contacted to see if they offered a free damp survey. These were chosen by entering into Google 'damp specialists Sheffield' as it was thought that this is what a prospective purchaser would do if they had been advised that they needed a specialist damp survey. The specialists were made up of four national firms and three local/regional ones. Six firms offered free surveys and undertook damp surveys over the course of two weeks.

It was not considered ethical to record the meetings without the specialist's consent, and as such, notes were taken once they had left. To establish if parallels could be found between the specialists' surveys, a checklist of eight areas was prepared to see if they were picked up on and discussed (see Table 3).

Table 3 – Damp Specialists Checklist

	<b>Specialist One</b>	<b>Specialist Two</b>	<b>Specialist Three</b>	<b>Specialist Four</b>	<b>Specialist Five</b>	<b>Specialist Six</b>
<b>Existing DPC</b>	Yes	Yes	No	Yes	No	Yes
<b>Mortar Joint</b>	No	No	No	No	No	No
<b>LHS Boundary Wall</b>	No	Yes	No	No	No	No
<b>Window Trim</b>	No	No	No	No	No	No
<b>RHS Boundary Wall</b>	No	No	No	No	No	No
<b>Fall Pipe</b>	No	No	No	No	No	No
<b>Bay Window Rebuilt</b>	No	No	No	No	No	No
<b>Adjoining Property Height</b>	No	No	No	No	Yes	No

To make further comparisons between the specialists, notes were made as per Table 4.



Table 4 – Notes on Specialists’ Inspections

	Specialist One	Specialist Two	Specialist Three	Specialist Four	Specialist Five	Specialist Six
Time on Site (Minutes)	12	11	20	16	8	12
Measure Height of Existing DPC?	No	No	No	No	No	No
Equipment Used (All also used different types of laser)	Protimeter Surveymaster (old Style)	Protimeter Surveymaster (new style)	Sovereign Quantum Moisture Meter	Protimeter Surveymaster (old style)	Sovereign Quantum Moisture Meter	Protimeter Surveymaster (new style)
Recommend New DPC	Yes - Chemical Injection Damp Proof Course	Yes - Chemical Injection Damp Proof Course	Yes - ***** System	Yes - ***** Drywall Diffusion System	Yes - Chemical Injection Damp Proof Course	Yes - Chemical Injection Damp Proof Course -
Recommend Replastering?	Yes	Yes	No	Yes	Yes	Yes
Proper Explanation of Problem and proposed solution?	1/10 - No explanation of either the problem or the solution.	3/10 - Brief explanation, concentrated on advising of other works completed in the area.	4/10 - Advised me to read about the system in a leaflet that they emailed over.	3/10 - Didn't explain the system, just reiterated how it was better than everyone elses.	1/10 - No explanation of either the problem or the solution given, very much a hard sell.	4/10 - Average explanation of problem, but no explanation of the proposed solution.

\*\*\*\* Denotes Specialists name has been removed from product description.

Specialist One advised that the previous DPC was not installed correctly and said that salts were coming through the wall from the bay into the adjoining walls and as such the plaster will need replacing. They were unsure why there were no drill marks around the bay window, even though it was obvious that the bay window had been rebuilt. They offered no explanation how their proposal would solve the problem.

Specialist Two advised that they had done numerous other jobs on the road. They commented on the vertical abutment of the LHS boundary wall and said they would need to inject around the abutment from the outside, inject round the bay window at the front, knock plaster off inside and tank walls. A Protimeter was used to test walls and they advised that the beeping meant that it was damp. They also advised that there was a salt build-up around where the paint had blown, so plaster needed to come off.

Specialist Three spent most of the time measuring the perimeter of the property because they advised they would only treat the whole house and not just the area with symptoms. They asked if the homeowner had knowledge of the system, and said that an explanatory email would be sent. A quotation including a lifetime guarantee was prepared on site.

Before Specialist Four came out, they asked if any previous damp works had been undertaken. They were informed that a chemical DPC was installed in 2006. They advised that as they were a “founding member” of the PCA, they would not be able to comment on anyone else’s work. At the survey they repeatedly referred to their system as being the best but gave no explanation why.

Specialist Five spent only eight minutes undertaking the survey. The process was very rushed and more of a hard sell. No explanation of the problem or the solution was given. They put a moisture meter into the wall twice and said there was moisture and therefore rising damp. They quoted a price and then kept asking when a decision would be made and the works instructed.

Specialist Six picked up the existing DPC and explained briefly the theory of rising damp. They advised that a new DPC and associated replastering was needed but did not explain how the proposal would address the symptoms.

The reports prepared by the specialists are discussed in section 4.

### 3.3 Laboratory Testing – Brick Pillars

In his book, *The Rising Damp Myth*, Howell attempted to recreate rising damp in a lab at Southbank University but was unsuccessful. In order to observe first-hand how bricks behave, a number of experiments were undertaken at SHU (Fig. 25).



Fig. 25 – The testing process.

As most of the properties with surveys that recommend damp proofing are of Victorian age, I wanted to conduct testing on Victorian bricks. An advert was placed on NextDoor Forum asking people if they had any spare bricks (Fig. 26).

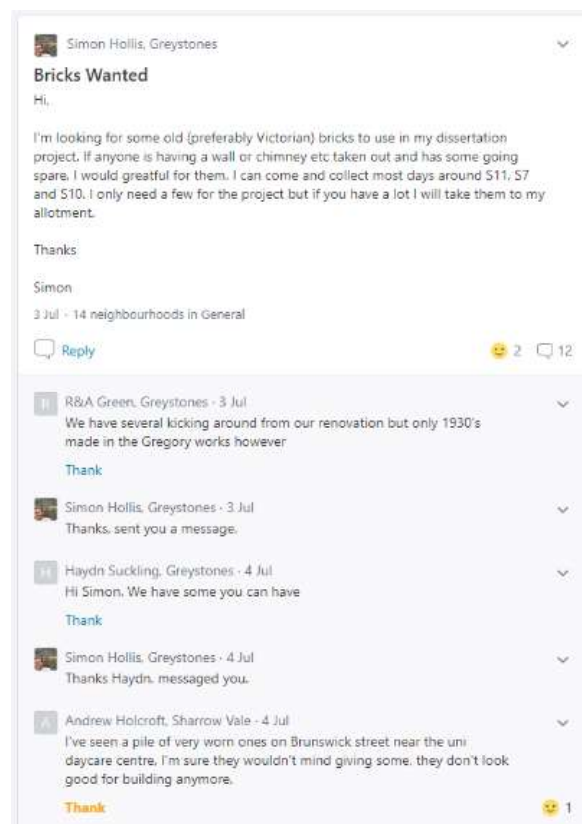


Fig. 26 – Advert for bricks posted on the NextDoor neighbourhood Internet forum.



Thirty-four suitable bricks were collected, many of them from the Gregory Brickworks on Ecclesall Road. The brickworks was less than a quarter of a mile from the case study properties and produced the bricks used to build these houses. All of the bricks were cleaned up to remove as much mortar as possible. The first bake was undertaken at 150 degrees Celsius for one hour, eight bricks at a time. After advice from Dr. Liz Laycock, the bricks were baked again at 103 degrees for 45 hours. Once baked, they were labelled and weighed as per Table 5.

Table 5– Weight of Bricks After Drying Out.

Brick Number	Brick Weight (g)		Brick Number	Brick Weight (g)	
	10th July	12th July		10th July	12th July
1	3792	n/a	18	3730	3687
2	3862	3841	19	3990	3960
3	3995	3950	20	4039	4015
4	4101	4081	21	4475	4425
5	3619	3563	22	3305	3270
6	4000	3950	23	4136	4112
7	3961	3892	24	3953	3885
8	3024	2944	25	3667	3341
9	3930	3926	26	4034	3952
10	3870	3838	27	3845	3780
11	4221	4168	28		4134
12	4084	3985	29		3357
13	3956	3906	30		4207
14	4273	4235	31		3780
15	3928	3885	32		4135
16	4005	3845	33		4270
17	2900	2872	34		4061

The mortar used was four parts sharp sand to one-part Portland cement. This was measured by the shovel and hand mixed as it would have been on site when the study houses were built. Weighing materials and machine mixing was not considered necessary as this would not have happened when the study houses were built. Bar submersion, all experiments were constructed in plastic trays with 30mm of water maintained around the base brick. The following experiments were then left over a six-week period.

### 3.3.1 Submersion

Brick 29 was used. When the brick went into the water (Fig. 27), it weighed 3,357 grams. This test will show how much water the brick can absorb and will mimic the situation found in areas where foundations are submerged in a high water table, potentially causing moisture to rise.



Fig. 27– Submersion testing.

### 3.3.2 Brick on Brick

Bricks 3 and 24 were used. A hole was drilled in the centre of 24, and a wooden dowel inserted then 24 was put on 3 (Fig. 28). For this experiment, the bricks with the two flattest tops/bottoms were chosen to give the best chance of seeing moisture transfer. Note that the bricks do not sit flush on each other and as such moisture may evaporate. This is how damp was controlled in some older (medieval) stone buildings.



Fig. 28 – Brick on Brick test.

### 3.3.3 Brick on Sand

Bricks 8 and 23 were used. A strip of cloth tape was placed near the top of 23 with a lip of 10mm sticking over the top. Sand was packed on top of the brick to level with the top of the tape, and then 8 was placed on top of the sand (Fig. 29). These bricks were chosen as 23 is the largest and 8 the smallest meaning that 8 could sit on top of the sand without being in contact with the tape so any moisture in 8 would have tracked through the sand as opposed to the tape. In his experiments, Howell was unable to get moisture to transfer between bricks and suggested this was because the cement in the mortar made the mortar impervious to water. By removing cement from the mix, I expect to be able to get moisture to transfer through the sand from the base brick to the top brick.



Fig. 29 – Brick on Sand test.

#### 3.3.4 Brick on Mortar

Bricks 2, 6, 11 and 22 were used to build a larger pillar (Fig. 29) that is more representative of a traditionally constructed solid wall house constructed without a DPC. If Howell's theory is correct, the cement content of the mortar should stop moisture transfer from the submerged base to the top bricks. If the damp-proof specialist's theory is correct, moisture will wick up the pillar via capillary action.



Fig. 29 – Brick on Mortar test.



### 3.3.5 Engineering Bricks

Bricks 4 and 12 were used as the base with 16 and 17 being the engineering bricks, and 7 and 26 formed the top (Fig. 31). Engineering bricks are used as a physical DPC as their dense clay and high firing temperature make them impervious to water (water absorption less than 7% (<https://www.wienerberger.co.uk>)). Having observed a house on Eastwood Road, Sheffield with four layers of engineering bricks and chemical DPC above (Fig. 32), it was thought worthy of investigation as to their reliability. These bricks are an established physical DPC method, and no research dismissing using them for this purpose has been found.



Fig. 31– Engineering Brick test.

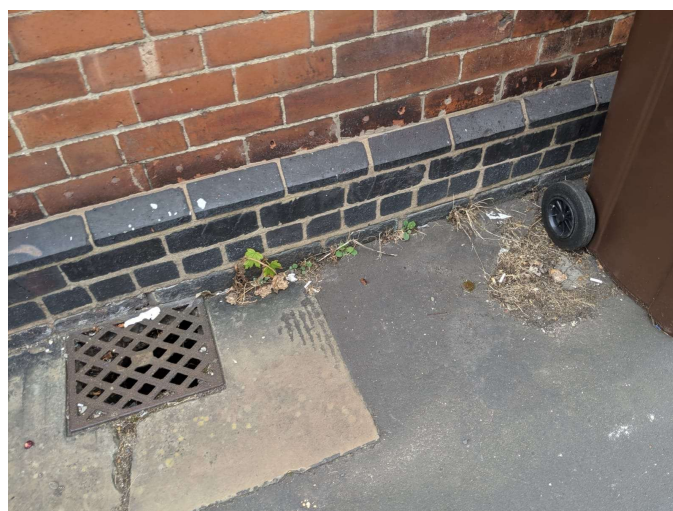


Fig. 32 – House on Eastwood Road, Sheffield where a chemical injection DPC sits above 4 courses of engineering bricks.

### 3.3.6 Slate

Bricks 20, 30, 31 and 32 were used. Although the majority of information suggests that slate DPC's do not suffer degradation, information from the damp specialists' state that slates crack, delaminate and degrade over time and properties with them need a chemical DPC. To see if that can be proved, a double layer of slates that are c. 50 years old has been used (Fig. 33).



Fig. 33 – Slate test.

### 3.3.7 Damp Proof Course

Bricks 25 and 28 were used to test a modern Low-density Polyethylene DPC. It is expected that no moisture will penetrate through this.



Fig. 34 – DPC test.

A full set of photos can be found in Appendix I (parts I and II).

### 3.4 Lab Testing – Porosity

Bricks 5, 9, 10, 13, 14, 21 and 27 were used. Testing was undertaken so that an accurate moisture reading of the brick could be taken and then directly compared to readings taken by an electronic moisture meter to see if the results were comparable (Fig 35).



Fig. 35 – Testing process.

Bricks were collected, cleaned, dried out and weighed as detailed above. Buckets of de-ionised water were prepared, and the bricks placed in the vacuum chamber. Bricks were left in the vacuum chamber for one hour. Water was then pulled through to flood the chamber.

A carrier was made from wire so that the bricks could be held on the surface of the water and then submerged. This enabled suspended and saturated weights to be taken to complete the calculations. Once the bricks had been weighed, a Protimeter was used to take moisture readings. The results will be analysed in section 4.

A full set of photos can be found in Appendix I (parts I–IV).

### 3.5 Interviews with Chartered Surveyors

To see if surveyors are providing the correct advice to homeowners, it was decided that interviewing surveyors was necessary. To ensure the aims and objectives of the study were met, they were specifically asked questions related to damp diagnosis and how they would record and report this if they were surveying an Edwardian/Georgian/Victorian property of traditional construction (see example questions in Appendix H). To aid comparison, the interviews were of a semi-structured/structured nature.

To try to gather as much primary data as possible, ten surveyors were asked to participate in interviews. These were a mix of general practice surveyors, building surveyors, residential surveyors and specialists in the field working in a mix of companies from sole practitioners to international firms. As they all had different background and different specialisms, their opinions were expected to form a good sample. Unfortunately, of the ten asked, only two full responses were received before the cut-off date. One survey was conducted over the telephone and one via email. Their opinions will be discussed in section 4.



## 4 Analysis and Discussion

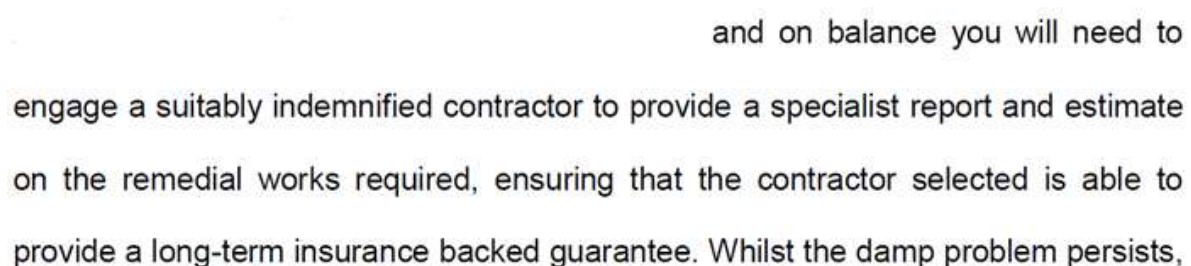
This section will cover the case studies and surveys in more detail and present an analysis of the experimental data collected.

### 4.1 Survey Reports

Ten surveys met the study aims and objectives and have been analysed in more detail. These have been chosen because they fit the criteria of being Edwardian, Georgian or Victorian, predominantly have solid walls and have been identified in the survey to have damp-related problems. The survey report is often received towards the end of the purchase process and so there is not always time for a second opinion or the opportunity to speak to the surveyor. Chartered Surveyors are all governed by the same regulatory body, the RICS, and so the advice given should be relatively consistent and presented in an easy to understand way.

Property numbers have been kept the same as in the Table 2 but the properties without damp have been removed and as such the numbering is not consecutive. Extracts of the reports are presented as screenshots in the order they appear in the survey so that the information is analysed as it would be seen by the prospective homeowner. Personal and property details have been redacted.

Figure 36 shows the report from Property 2.



and on balance you will need to engage a suitably indemnified contractor to provide a specialist report and estimate on the remedial works required, ensuring that the contractor selected is able to provide a long-term insurance backed guarantee. Whilst the damp problem persists,

### 5.20.01 Rising Damp

There is evidence of rising damp within the property particularly (in the context of both rising and lateral damp) to the lower ground floor flat. The artificially raised external ground levels to the rear are a contributing factor as is the lack of tanking to the lower ground floor flat bedroom and bathroom and store. Specialist contractors will need to be engaged to provide an estimate for all necessary remedial works. You do need to ensure that the contractor selected is able to provide an estimate and long-term insurance backed guarantee.

Fig. 36 – Extracts from the surveyor's report – Property 2.

In this report, the surveyor has advised on a possible cause of damp in the property and provided justified advice to the prospective homeowner. The surveyor has fallen short of providing a comprehensive diagnosis of all the problems and instead, recommended that a specialist report be prepared by a suitably indemnified contractor. As this is a building survey, which is significantly more expensive than a HomeBuyer Report, it would not be unrealistic for a surveyor to get to the bottom of a damp-related problem.

Figure 37 shows the report from Property 3.

A damp proof course (DPC) is a waterproof layer built into or formed within the walls to prevent ground dampness from rising. External pointing concealed the subject DPC which would typically be of bitumen felt in a property of this age and style. Having regard to thickened pointing, a DPC appears to be present and at an adequate height above external ground levels. It is recommended that all external ground levels should be at least 150mm (6") below the DPC.

Random moisture meter readings were taken throughout the ground floor of the property.

Fig. 37 – Extracts from the surveyor's report – Property 3.

Although damp was not highlighted in this survey report, the surveyor has brought an interesting point to the buyer's attention but has not provided further advice on it. They advise that there appears to be a DPC but that is covered in thick pointing. Whilst this may still allow the DPC to function to prevent moisture rising through the brickwork, the thick pointing is likely to be bridging the DPC and as such removing it is likely to be beneficial.

Figure 38 shows the report from Property 5.

All of the walls are dry-lined internally. No comment can therefore be made on the condition of the wall surfaces behind these linings, particularly with regards to damp and movement.	
Part of the left-hand extension wall should have been tanked (vertical damp-proofing) due to high external ground levels but we were unable to ascertain whether this has been done and such measures are usually	
<b>Property address</b>	
RICS HomeBuyer Report (Survey & Valuation) 12	
<b>rics.org</b>	
<h2>Outside the property (continued)</h2>	
concealed. We were unable to locate a DPC to the original walls. This does not necessarily mean that a DPC is not present, it may simply be concealed. In a property of this age, it is likely that a slate or bitumen DPC would have been used. We found no evidence of significant rising dampness at the time of our inspection but we refer to our comments about dampness to the original rear wall within the house in section F3 - Walls and partitions below.	
Whilst no rising dampness was noted during the inspection, assumed bitumen or slate DPC's of this type are prone to long term failure due to the natural deterioration of material. It is possible that dampness may occur in the future which will require remedial treatment.	
All of the walls are dry-lined. No comment can therefore be made on the condition of the wall surfaces behind these linings, particularly with regards to damp and movement.	
Damp meter readings were taken at selected intervals on internal wall surfaces. On the whole, no evidence of significant internal dampness was detected at the time of my inspection. However, an isolated area of damp was noted to the left-hand side of the original rear wall. It is also possible that areas of dampness may be present in areas that we were unable to test. In view of this and the dampness referred to above, we recommend you instruct a specialist damp company to provide a report on all of the walls and advise as to any necessary remedial works which should be undertaken. <b>Condition Rating 2.</b>	
We noted dampness to some of the ground floor walls. Timbers in contact with damp walls are at risk of rot and we refer to our comments above.	
<b>J1 Risks to the building</b>	
F4: Floors - woodworm, rot, inadequate sub-floor ventilation, damp wall;	

Fig. 38 – Extracts from the surveyor's report – Property 5.

Of all the surveys analysed for this study, this one is perhaps of most concern in terms of advice provided to the prospective homeowner. The surveyor has been unable to maintain consistency with the advice that they are providing and have tried to indemnify themselves in the Limitations sections and by recommending further investigation.

The surveyor starts by saying that they are unable to comment on certain issues, particularly damp. They go on to advise the homeowner that part of a wall should be tanked, but they are not sure if it has been. Then, they comment that they are unable to locate a DPC but that it is likely that there is one and they have found no significant evidence of rising dampness. They then advise that bitumen and slate DPC's of this type are prone to long-term failure (this is presumptuous as they have previously said that they have not found a DPC and now they are commenting on the type installed and their perceptions of its problems). They repeat that they cannot comment on damp again but then advise that they have taken damp meter readings and advise that on the whole no evidence of significant internal dampness was detected. But they then say that there is an isolated area of damp, there may be damp where they are unable to test and recommend a specialist damp company provide a report on all of the walls. The report then refers to there being dampness in some of the ground floor walls and notes a damp wall in the J4 summary section under Risks to the Building.

As a chartered surveyor, the author struggles to follow this survey, and it presents poorly to the reader as they cannot possibly be expected to understand if there are or are not any problems with damp at the property.

Figure 39 shows the report from Property 6.

#### E4 Main walls

Main walls are of traditional solid construction (approximately 225mm thick) with brick faced elevations. The later extension is of traditional cavity construction (approximately 275mm thick) with brick faced external elevations. 1

The walls were found to be in satisfactory structural condition with no significant cracking, bulging or structural movement noted. The walls were also well pointed.

#### **Damp-proof course**

Damp proof courses (DPC's) are built into properties to prevent the movement of ground moisture through the wall and prevent deterioration of internal fixtures and fittings and also to prevent high levels of moisture leading to wood rotting fungi.

There are drill holes to the base of some of the external walls, indicating that a replacement chemical injection DPC has been installed.

We found no evidence of significant rising dampness at the time of our inspection.



Fixtures, fittings and stored items considerably restricted our damp inspection and large areas of the wall surfaces were not available for testing. We can give no warranty regards the condition of areas where we were unable to inspect.

Damp meter readings were taken at selected intervals on internal wall surfaces. No evidence of significant internal dampness was detected at the time of my inspection.

Our inspection of wall surfaces for damp purposes was severely restricted by furniture and stored items and we can give no warranty regarding the condition of concealed areas where we were unable to test wall surfaces.

**Condition rating 1** - The property must be maintained in the normal way.

Fig. 39 – Extracts from the surveyor’s report – Property 6.

This survey provides the reader with a little background information on the construction of the walls and the damp-proof system that has been retrofitted. The comments are more consistent than the previous example but still twice advise that there is no evidence of significant rising damp whilst also advising that there are large areas of the property that the surveyor has been unable to inspect. Whilst this may be factually accurate, it does not provide enough meaningful information to the homeowner.

Figure 40 shows the report from Property 7.

Main walls including damp proof course	Brick cavity walls. Suspected brick and block to the side extension. Partly rendered and painted finishes. There are no visible damp proof courses. Brick and part timber frame front bay.
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Internal walls & decorations	Visually inspected and tested for dampness with a meter.
Floors including sub floors	The surface of exposed floors is visually inspected. No carpets or floor coverings are lifted. Sub floor areas are inspected only to the extent visible from a readily accessible hatch and floorboards are not lifted.
Internal joinery & kitchen fittings	Built in cupboards are inspected internally and no stored items are removed. Kitchen fittings are visually inspected excluding appliances.


<b>Dampness, rot &amp; infestation:</b>			<b>Repair categories</b>
<b>Repair category</b>	<b>3</b>		<p><b>Category 3</b> Urgent repair or replacement is needed now. If this is left unattended additional problems will develop or may become a safety hazard. You should get further advice and estimates now.</p> <p><b>Category 2</b> Repair or replacement requiring future attention, but you should still get estimates.</p> <p><b>Category 1</b> No immediate repair or replacement is necessary.</p>
<p>Rot is affecting timbers seen within the cellar and I suspect this is due to dampness and poor ventilation.</p> <p>Woodboring insect infestation is affecting timbers visible within the cellar.</p> <p>Dampness is affecting areas of ground floor walls and the front bay. I suspect this is due to ineffective damp proofing and ingress through the structure. Concealed timbers may be defective and these areas should be opened up and fully investigated.</p> <p>Penetrating dampness is affecting areas of internal walls at ground and first floor. I suspect this is due to ingress through the structure. Concealed timbers may be defective and affected areas should be opened up and fully investigated.</p> <p>The ground level is close to the damp proof course which could cause dampness problems.</p> <p>Sub floor ventilation is inadequate and additional airbricks should be provided/existing airbricks should be unblocked. This may have allowed defects to occur in concealed areas and you now need to instruct a contractor to open up the flooring to identify the full extent of the problem and the necessary repairs required, together with an estimate of the cost.</p> <p>You now need to instruct a damp proofing/timber treatment contractor to carry out an investigation to identify the full extent of the problem and the necessary repairs required, together with an estimate of the cost.</p>			

Fig. 40– Extracts from the surveyor’s report – Property 7.

This report is unusual as it is titled ‘Colleys Property Check’ and does not take the form of a standard RICS report. The report is inconsistent, initially stating that there are no visible damp-proof courses, then stating that the ground level is close to the damp-proof course which is causing damp problems.

The surveyor tells the prospective home owner to instruct a damp-proofing contractor to carry out an investigation to identify the full extent of the problem and necessary repairs required.

Although this report highlights defects, their identification is not consistent. The surveyor instructs (as opposed to suggests) the homeowner gets a damp contractor to identify the problem. This is poor practice and in the rest of the report, the surveyor falls short of providing



good advice to their client. Little effort is made to identify the cause of the problems with the surveyor trying to place this responsibility onto someone else.

Figure 41 shows the report from Property 8.

### 5.7 Moisture / Damp / Ventilation

Due to the age of the building, it would have been constructed with a damp proof course. When inspecting the basement, it was evident that bitumen had been used and this spanned over the brickwork into both brickwork walls (*viewed above the air-vent*). The DPC was only visible in localised areas.

The property would also have relied on adequate internal ventilation and breathability of the structure especially at low level. In a traditionally built property it is essential to control moisture internally through ventilation and vapour permeable materials.

Internally there is no visible evidence of internal damp with the exception of the toilet in the extension. Humidity levels were recorded and there was no evidence to suggest any issues. We did note the ground levels have bridged the sub-floor vents in places especially to the rear. In these types of property, it is common for the cavities to become blocked with debris resulting in a bridge allowing moisture to penetrate into the internal leaf.

Due to ground levels, blocked and incorrectly spaced air vents; moisture is forced into the basement. Without adequate ventilation, the area will become saturated; the humidity levels will increase allowing infestation and decay to occur. Adequate sub floor ventilation, ideally air vents or air bricks should be provided at every 1.2 – 1.5 metre centres, with attention paid to corners of buildings. Cross ventilation should be provided to opposite ends of the building to minimise the risk of decay developing within ground floor timbers. There is evidence of decay as noted above but can be repaired.

From the readings taken with the hygrometer it identifies that the atmospheric conditions within the property are adequate. Normally a dry house would be in the region of 6-7g/m<sup>3</sup> but we have to take into consideration the external conditions as it was a humid day. Generally, the levels were lower internally than externally. Without carrying out specialist testing the moisture levels of the wall cannot be tested but internally there was limited evidence of damp.

It is essential to control ventilation during condensation season.

Area	Temperature °C	Relative Humidity %	Dew Point °C	Absolute Humidity g/m <sup>3</sup>
External	24.2	60.8	16.1	13.43
2 <sup>nd</sup> Floor	23.2	54.4	13.5	11.35
1 <sup>st</sup> Floor	23.1	55.9	13.8	11.58
Lounge	23.1	57.8	14.3	11.97
Dining Room	23.9	59.6	15.6	12.95
Kitchen	21.9	60.3	15.3	12.80

When living in the property ventilation is important as this will help the air changes to ensure the moisture within the air is kept to a reasonable level. This will contribute to a healthy lifestyle, preservation of the timbers and the economic running of the building. Building regulations state that mechanical humidity controlled vents should be used in kitchens and bathrooms. Natural ventilation should be present in other rooms.

With the benefit of breathable materials, the property will be drier and more economic to run. A constant heating regime, 15 degrees as a minimum, coupled with measures to make the building envelope more permeable, will help prevent future damp problems.

Area	Temperature °C	Relative Humidity %	Dew Point °C	Absolute Humidity g/m <sup>3</sup>
External	24.2	60.8	16.1	13.43
Under Kitchen	19.7	74.7	14.9	12.59
Under Hallway	19.4	77.6	15.4	12.99

Basement walls should not be tanked or covered with modern paints they should be left exposed or covered with limewash.

**Estimated Section Total: £ 2,500.00**

Important Notes on Damp

*Hand held non-invasive moisture meters (protimeter etc.) are not capable of determining moisture content of the masonry and are designed for timber. No carbide or detailed damp testing was undertaken and the survey was limited in this respect. Carbide testing involves drilling a small sample.*

*Note - Further reading and referencing made in respect of why impervious materials (eg. cement and gypsum plasters) are not appropriate for traditional buildings and the importance of maintaining breathability can be found at;*

- a. *British Standard – BS 7913 The Conservation of Historic Buildings*
- b. *SPAB Technical Information Sheet No 4 – The Need for Old Buildings to Breathe 1993*

Fig. 41– Extracts from the surveyor’s report – Property 8.

This report (Fig. 41) is a very evident step up from the previous HomeBuyer reports and clearly illustrates that you get what you pay for. The surveyor preparing this report is clearly very knowledgeable and provides the client all the information they would ever need to make not only an informed decision on the purchase, but what actions to take once they own the property and going forward. Recommendations are even referenced where appropriate.



Figure 42 shows the report from Property 9.

E4 Main walls	<p>The walls which are approximately 225mm (9") thick, are built of brick and are of solid construction. Internally, the walls have plaster finishes.</p> <p>The walls are in good structural condition with no significant defects apparent.</p> <p><u>Finishes</u></p> <p>Localised repointing and making good is needed where some mortar joints have failed and eroded and where masonry has weathered excessively to stop any further deterioration and decay. This work will also reduce the risk of rain penetrating the masonry causing damp internally.</p> <p>Holly is growing by the front bay. This may damage the masonry and should be removed to avoid damage to the masonry and penetrating damp and decay internally.</p> <p>This is not considered to be either serious or urgent and can be dealt with soon after taking ownership. However, you should obtain estimates for repair/improvement work before exchange of contracts.</p> <p><u>The damp-proof course (horizontal damp barrier)</u></p> <p>The walls contain a chemical damp-proof course. This has been introduced since the property was originally constructed and your legal adviser should check with the current owner for any guarantees in respect of the work. We refer you to our recommendations in Section I.</p> <p>We found no signs of rising or penetrating damp in the property and the damp-proof course appears fully effective.</p>	<b>2</b>
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Fig. 42– Extracts from the surveyor’s report – Property 9.

This surveyor has provided good, concise advice (Fig. 42) and committed to their position without recommending further investigation.

Figure 43 shows the report from Property 10.

E4 Main walls	<p>The external walls are 250mm solid brickwork, part rendered to areas. The damp-proof course was not visible although in a property of this age it is assumed to be slate. Sub-floor ventilation is provided by air grates at the base of external walls.</p> <p>The external walls are in fair condition for their type and age and there was no evidence of any significant damage nor deflection noted. Where there are air grates, they should ideally be made larger in size to allow an adequate flow of air into the sub-floor void. They are rusting to areas and these older air grates should be replaced. <b>Condition Rating 2.</b> Repairs/improvements are needed and we refer you to the page in this report entitled 'What to do now'.</p> <p>Where access allowed, damp meter readings were taken from internal ground floor walls just above the skirting boards. Due to a general lack of high damp meter readings internally, it appears the damp-proof course is working satisfactorily.</p> <p>There was no evidence of any significant cracking or deflection of the external walls. There is old cracking on the front bay and also a number of old render cracks at the rear. The cracks appear longstanding and historic. There is no evidence to suggest any recent or ongoing movement of the property. Cracked areas of render should be made good.</p> <p>The subsoil in the area is of a shrinkable nature which can cause foundation movement. The risk is increased if drainage is defective and when prolonged dry spells of weather occur. Although we found no evidence of such movement, this could happen in the future with a property of this age.</p> <p>Solid external walls, particularly those which are relatively thin and less than one brick thick, lose heat quickly and are very prone to damp penetration, condensation and disrepair. Such walls rely upon the quality of the external pointing and masonry surfaces for their weather-proofing and these should always be kept in good condition. However, with increasing spells of very severe</p>	<b>2</b>
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Fig. 43– Extracts from the surveyor’s report – Property 10.

Again, here, the surveyor has provided good, concise advice (Fig. 43) and has not recommended further investigation.

Figure 44 shows the report from Property 11.

F3 Walls and partitions	<p>Isolated areas of rising damp/condensation are evident to the ground floor notably to the party wall adjacent to the kitchen door. This could be mitigated by removing the affected plaster, applying a damp proofing slurry to exposed masonry and replastering with renovating plaster (non-hygroscopic) prior to a skim finish.</p> <p>Consideration may be given to commissioning a specialist timber and damp report as a precaution.</p>
J1 Risks to the building	<p>E2: Re-point ridge tiles. Repair/replace roof light.</p> <p>E3: Re-fix rainwater pipe/hopper to the front elevation.</p> <p>E4: Selective re-pointing /general maintenance to main walls.</p> <p>E5: Replacement mastic fillets to window frames, as necessary.</p> <p>E8: Redecorate barge boards within the next 12 months.</p> <p>E9: Overhaul/repair outbuildings.</p> <p>F3/F4: Commission specialist timber and damp report.</p>

Fig. 44– Extracts from the surveyor’s report – Property 11.

Here, the surveyor starts by stating there is rising damp in an isolated area and then recommends appropriate remedial work, however then seems to lose a bit of confidence in his opinion and suggests consideration is given to a specialist report.

Figure 45 shows the report from Property 13.

E4 Main walls	<p>chemical injected damp proof course visible to external walls. We recommend that the guarantee of the installer is obtained before commitment to purchase. If no such guarantee is forthcoming or the guarantee supplied is too limited or worthless then any future repairs to the damp proof course will have to be repaired at your own cost.</p> <p>External ground levels are too high in relation to the damp proof course. The ground level should be reduced to 150mm below damp proof course level to prevent excessive wetting of the brickwork.</p> <p>The right hand side front brick boundary wall is slightly breaching the damp proof course but an injected damp proof course has been provided around.</p> <p>Sub floor ventilation is provided by air bricks. The number and distribution is considered acceptable although it is recommended that old style air bricks are replaced with new high flow air vents. It is also recommended that one air brick is provided to the rear elevation beneath the dining room window.</p>
F3 Walls and partitions	<p>Internal walls are a mixture of masonry and timber stud partitioning with plaster finish. <span style="float: right; border: 1px solid red; border-radius: 50%; padding: 2px 5px; color: white; font-weight: bold;">3</span></p> <p>The original wall between the kitchen and dining room has been removed. It is assumed that building regulations approvals were granted and complied with and this should be confirmed before exchange of contracts.</p> <p>Due to the age of the property plaster will be aging in areas and will be losing its adherence to the wall surfaces beneath. When you come to redecorate you may have to re-plaster some wall areas.</p> <p>Moisture meter tests using a protometer were made throughout the ground floor walls above skirting board level where there were no furnishings or back units and localised high moisture readings were obtained to ground floor walls.</p> <p>Despite evidence of past damp proofing works moisture test readings suggest failure of either the damp proof course or the re-plastering scheme has been carried out to an inadequate specification. If a guarantee exists check that the installers will remedy the problem under the guarantee before exchange of contracts. If no guarantee is available then you will need a further report before exchange of contracts from a competent damp proofing specialist providing costs and specification for the installation of an effective damp proof course and an appropriate re-plastering scheme.</p> <p>There was evidence of high moisture readings to the rear and right hand wall of the rear kitchen directly beneath the old external chimney stack. Repairs should be undertaken on a trial and error basis to the roof and walls in this location to eradicate the dampness.</p>
I2 Guarantees	<p>Your solicitor should before exchange of contracts confirm guarantees for:</p> <ol style="list-style-type: none"><li>1. Damp proof course.</li></ol>
J1 Risks to the building	<ol style="list-style-type: none"><li>1. Localised damp to ground floor walls.</li></ol>

Fig. 45– Extracts from the surveyor's report – Property 13.



Whilst the surveyor has recommended further investigation in this report (Fig. 45), they have provided the homeowner with a good rational explanation of the existing DPC, what they could do re guarantees and tried to diagnose the problems. The recommendation of a report seems to be more for costings than an attempt to get someone else to look at the problem.

Figure 46 shows the report from Property 14.

#### 11.6 Damp Proof Course

There was evidence of a chemical injection damp proof course (dpc) at the base of the main walls. As a rule the external paved areas surrounding a house should be at least 150 mm below the damp proof course or internal floor area, whichever ever is the lower, with a slope away from the walls. I am concerned that the results of the damp meter tests clearly show that the existing dpc is not effectively protecting the property from rising damp (reference at this point should be made to section 12.7 Dampness).

**ACTION:** It would be prudent as part of any larger renovation work for a new chemical injection dpc to be installed throughout the ground floor. **Cost** - £35 per metre (excludes VAT and access).

#### 12.7 Dampness

Twenty-five tests were made for dampness on a warm dry day with the house ventilated<sup>3</sup>. The results obtained in different circumstances could be different. In the majority of areas unusual levels of moisture was

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<sup>3</sup> All tests taken using a calibrated GE Surveymaster Protimeter Dual Function Moisture Meter. The meter's calibration is tested just before and after each inspection to ensure accuracy.

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found with the readings ranging from 15.0% WME (wood moisture equivalent) to 86.4% WME. Put simply the meter alerts the user to the presence of moisture on a 'traffic light system' readings in the green zone are normal, amber are border line and red indicates abnormal moisture is present. From the total tests undertaken eighteen were abnormally high. It was not possible to take tests at low level in the kitchen, I would advise that any purchaser should include a budget sum of £1000 (excluding VAT) to cover the cost of damproofing the ground floor. (refer to 11.6 damp proof course).

Fig. 46– Extracts from the surveyor's report – Property 14.

This is a building survey (Fig. 46) and as such more comprehensive. The surveyor presents their findings, recommendations and costings to the homeowner so no further investigation is required.

Figure 47 shows the report from Property 15.

7 Walls

The main walls of the building are of solid brick construction. There is step cracking over the front bay roof and on the rear elevation, both of which are indicative of lintel failure. Remedial work is required.

I think you already have the specialist report relating to the issue of wall ties and rising/penetrating damp. Nevertheless I would draw to your attention the high ground levels towards the rear of the property, both up the passageway and on the rear elevation, which need to be reduced.

Fig. 47– Extracts from the surveyor's report – Property 15.

The surveyor's report is set out over three pages and takes the form of a letter (Fig. 47). After the surveyor inspected the property he telephoned and advised that there was rising damp and recommended a contractor to prepare a report which was subsequently undertaken (and received back before the surveyor's own report). This is clearly an odd and conflicted way of working and it is doubtful this 2006 report would be considered acceptable in the present day.

Figure 48 shows the report from Property 16.

12

## E Outside the property (continued)

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E4 Main walls	Brick solid walls were stable Dssh render to upper levels No signs of subsidence or settlement of concern Decorative wood facade was in order - you should ensure that this is subject to cyclical preservation	<b>1</b>
E5 Windows	Pvc u sealed glazed windows Silicone mastic sealant These are dated and you may consider alternate at some time as condensation within panels were noted at bedroom	<b>2</b>
E6 Outside doors (including patio doors)	Pvc u to front and rear with sealed glazed panels No concerns	<b>1</b>
E7 Conservatory and porches	Integrated brick archway storm porch No concerns	<b>1</b>
E8 Other joinery and finishes	Condition rating 1. No repair is currently needed. The property must be maintained in the normal way.	<b>1</b>
E9 Other	  	

Fig. 48– Extracts from the surveyor’s report – Property 16.

This report (Fig. 48) has been included to demonstrate the different styles in which HomeBuyer reports are prepared. The entirety of the report is prepared on a seemingly pay-per-word basis.

Having considered the above reports, the position is perhaps not quite as dire as originally thought. Six of the surveys recommend specialist investigation; of these, two were of a very poor standard. Language used is acceptable but explanations could be better. There is evidence that some reports do provide the prospective purchaser with the required standard of information. However, it is not really good enough that not all of them do.



## 4.2 Case Studies

From the responses to the questions asked in Appendix G, the most pertinent points are discussed below.

### 4.2.1 Case Study One

The interviewee was happy with the selection process when determining what survey to instruct and went for the HomeBuyer as this was the 'middle one'. Following receipt of the report, they expected the surveyor to recommend further investigation and also expected there to be damp because of the age of the property. Later in the interview they changed their stance on this a bit and said that the report felt templated and made them not trust the report and treat it with caution. They also said that there were so many additional reports recommended at the end that they were unsure of what to pay attention to.

When running through some of the terminology in the report, the homeowner was unsure of what a number of terms meant, in particular to do with raised ground levels and the boundary wall abutment. The homeowner went on to say that they were even unsure where in the property some of the points referred to.

They advised that after the survey they did not take any of the advice and they thought they would move in and see what happened. A year or so later an arc of damp appeared round the bay window and at that point a friend recommended going to \*\*\*\*\* who recommended a new DPC and specialist plaster. They opted to use \*\*\*\*\* as they had a 'cowboy contractor' previously and trusted that \*\*\*\*\* would turn up and do what they said they would.

They commented when going through the specialist report that they found it easier to understand than the surveyors report, and did notice inconsistencies between the two but were still unsure of what a number of terms meant.

The homeowner did not instruct the works straight away and instead tried to see if the damp was impacted by the weather. They noted that it was weather dependent and got worse when it rained.

In the specialist's terms and conditions, they state that when they are undertaking testing and sampling, they will use a carbide meter. When shown pictures of a Protimeter and a Speedy meter, the homeowner advised that they used a Protimeter to undertake the testing.

When the homeowner purchased the house it already had a chemical DPC installed. \*\*\*\*\* advised that this was not functioning and they needed to put in a new one to stop the problem. When the homeowner was asked how they thought a new DPC would work they advised that they thought that the treatment would form some sort of seal to stop the water.

In summary, the homeowner was initially happy with the survey, but upon reflecting in more detail, trusted it less because they did not know which bits to pay attention to. The terminology was understood on the whole but some more detail in the survey to explain high ground levels and abutments would have been beneficial. It is disappointing that the homeowner was unable to find out which bits of the property the report refers to.

Whilst inspecting the property prior to the interview, this author noted a number of defects as per Table 6.

Table 6 – Case Study One Defects.

Case Study One - Defects to Consider	
One	Fall pipe is leaking around a joint. Evident this has been ongoing for some time as moss has formed.
Two	Bay window has no guttering. Rain water falls backwards towards the front elevation and runs off the LHS and RHS of the roof.
Three	Where the edges of the window sill meet the front elevation, the gap is filled with expanding foam where it should be detailed in silicone. This is allowing water to get behind the frame as opposed to off the front of the sill.
Four	Pointing had been washed away where the lower stone sill meets the front elevation on both the LHS and RHS. I suspect this was caused by the rain water coming off the bay roof, hitting the floor and bouncing back up. These areas were repointed by the specialist when they installed the DPC.
Five	The lower section of the bay window is coming away from the front elevation on the RHS. This is taking the pointing with it and leaving a gap for moisture to enter.
Six	The slab that has been cast in the front garden has a gap where it meets the front elevation. It is likely that water from the leaking fall pipe is getting down this gap from where it cannot escape.



Fig. 49 – Case Study One Defects.

The homeowner advised in the interview that the internal damp patch got worse during periods of heavy rain. The above defects (Table 5 and Fig. 49) would allow water penetration in the affected areas during periods of heavy rain. None of these defects were noted in the report prepared by the specialist and if these repairs had been undertaken, the new chemical DPC may not have been necessary.

#### 4.2.2 Case Study Two

The post-survey information provided by the specialists is shown in Table 7. Pertinent points and survey analysis are detailed below and the specialists' findings will be compared to the findings of the carbide testing later on.

Table 7 – Post Survey Information.

	<b>Specialist One</b>	<b>Specialist Two</b>	<b>Specialist Three</b>	<b>Specialist Four</b>	<b>Specialist Five</b>	<b>Specialist Six</b>
Explanation of Works/Products Provided	Explanation of what they would do but not how it would work.	Explanation of what they would do but not how it would work.	Emailed a link to the website with an explanation.	Explanation of what they would do but not how it would work.	No explanation at all.	Explanation of what they would do but not how it would work.
Reccomendations as discussed at survey?	Not discussed at survey	Broadley	Not discussed at survey	Yes	n/a	Broadley
Diagram Provided	Yes	Yes	No	Yes	Yes	Yes
Cost	£1,298.40	£744.00	£2,715.12	£891.60	£480.00	£658.55
Guarentee Offered (Years)	20	20	Lifetime of brickwork.	20	Not stated	20
Accreditations	FMB Trust Mark Trusted Trader	None mentioned.	Check a Trade Guild of Master Craftsmen	PCA, Trust Mark, ISO 9001	None mentioned.	PCA, Which? Trusted Trader, Trust Mark, Safe Contractor

Specialist's Ones report and pertinent points (Fig 50):

- Recommends removal of the plaster to the front elevation and a chemical injection DPC and tanking installed.
- Advises that the pointing is in good order when in fact there is a large area missing which correlates with the internal defect.
- Advises that external ground is below the DPC when the adjoining property is above.
- States that there is no evidence of existing DPC when there is.
- Records high moisture meter readings and diagnoses rising damp.

In conclusion, the specialist failed to spot any of the building defects and in some cases commented incorrectly. There is no explanation in the thirty pages of literature that they sent on how their recommended system works.





Surveyor:  
Friday, 12 July 2019

**Acceptance – Company Copy**

Client: Simon Hollis Telephone: Mobile: 07947 255270 Email: simon@simonhollis.com

Address: 156 Murray Road Contract Address: 156 Murray Road

Sheffield S11 7QH Sheffield S11 7QH

Price of works is subject to and in accordance with the Survey Report, Specifications, Terms & Conditions and any enclosures.

Description of Works	Meterage	Cost	Accepted
Damp proof course injection (as per attached plan)	12m	£ 240.00 + vat	Yes / No
Plastering/Membrane as per our recommendation (as per plan)	8m	£ 495.00 + vat	Yes / No
Cut render back for installing DPC and to ground		£ 125.00 +vat	Yes / No
Re-fitting of original skirting boards	8m	£ 55.00+ vat	Yes / No
Replacement skirting boards	8m	£ 95.00+ vat	Yes / No
Floor survey (conducted at the time of the remedial work)		£ 75.00 + vat	Yes / No
Specialist Building Guarantee		£ 165.00 +vat	Yes / No

Please refer to the recommendations for full description of works

All prices are subject to VAT at the current rate of 20%

As stated the works will carry our normal company warranty for the areas treated. An Insurance Backed Guarantee is available on certain works. Works that have an Insurance Backed Guarantee are available upon request.

As the Owner/Tenant/Prospective Buyer/lessee of the property, I accept this quotation and acknowledge that I am responsible for payment to [ ] in accordance with their standard term and conditions.

By signing this agreement you are also confirming that you have read and agree to our terms and conditions and that this forms a contract and you agree that you are bound to its contents.

Signature: \_\_\_\_\_ Name: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/2019

Please insert preferred telephone number for us to contact you. TELEPHONE NUMBER: \_\_\_\_\_

1<sup>st</sup> Stage Payment (Materials deposit) Amount - £ \_\_\_\_\_

We will beat any genuine like for like quotation; CALL our office if you have been presented with a better quotation



PROPERTY ADDRESS: 156 Murray Road SHEFFIELD

PROPERTY TYPE: DETACHED [ ] SEM [ ] END TERRACE [ ] TERRACE [ ] BRICK [ ] STONE [ ]

RECOMMENDED WORKS: DPC [ ] PLASTERING [ ] TANKING [ ] JOINERY [ ] VENTILATION [ ] WATERPROOFING [ ] OTHER [ ] SKIRTING STYLE & SIZE [ ] JOIST STYLE & LENGTH [ ]

METERAGE: 12m [ ] 8m [ ] 8m [ ] 8m [ ] 8m [ ] 8m [ ]

KEY:

- DAMP FOUND
- DPC INJECTION
- REPLASTERING
- TANKING/VERTICAL MEMBRANE
- TIMBER FLOOR
- SOLID FLOOR
- RANS
- SUBFLOOR
- VENTILATION
- RADIATORS
- VERTICAL DPC INJECTION
- DPC INJECTION EXCLUSION
- PPR
- ADVERSE GROUND LEVELS
- JOIST DIRECTION
- WALL PAPER
- ARTEX

Please note glass not to scale

Simon Hollis Date: 11/7/19

**Brickwork**

The brickwork appeared to be in good order and well maintained.

**Pointing**

The pointing appeared to be in good order.

**External Ground Levels**

These appeared to be below the damp-proof course.

**Damp proof course**

There was no evidence that any previous damp proofing works had taken place.

**Moisture to the walls**

Random moisture readings were taken from various walls to the front lounge.

Dampness was noted to the lower region of the walls.

The paint was flaking away from the wall in areas.

High moisture readings were recorded to the base of the wall that gradually reduced as the meter was placed at higher areas of the wall.

**Conclusions**

Dampness occurs in different forms in properties, from the moisture profiling of the walls I conclude that it is suffering from the following moisture problems:

**Rising damp**

It is my recommendation that a chemically injected damp proof course (DPC) is injected to the property. The walls that are to be injected are to the front elevation.

The type of system employed would be a thixotropic cream in accordance with BS 6576: 2005 The code of practice for the installation of chemical damp proof courses.

**Plasterwork**

Plasterwork to damp areas should be removed to remove salts that will hunt for moisture even if the source of the original dampness has been cured. These salts are classified as hygroscopic and absorb moisture from the environment, thus giving the area a damp appearance. Please refer to the plan for the areas where the plaster is to be removed.

The plaster has to be removed back to masonry to a height of 1m, though to the right section of the bay (looking out of the window), the plaster needs to be removed to 1.9m.

The plaster has to be removed back to masonry from floor to ceiling.

A vertical damp proof membrane commonly referred to as tanking is then installed.

The type of damp proof membrane to be used is a cavity drain membrane that is fixed to the wall by plugs.

Plasterboards are then fixed to the wall by mechanically fixing the boards by using plugs.

Using fixings this will follow the wall profile and therefore should the wall be originally untrue then this will follow the profile.

Plasterboards will be fixed to the wall using plasterboard adhesive should the plaster be removed higher than 1.4m.

Fig. 50 – Specialist One – Pertinent Points

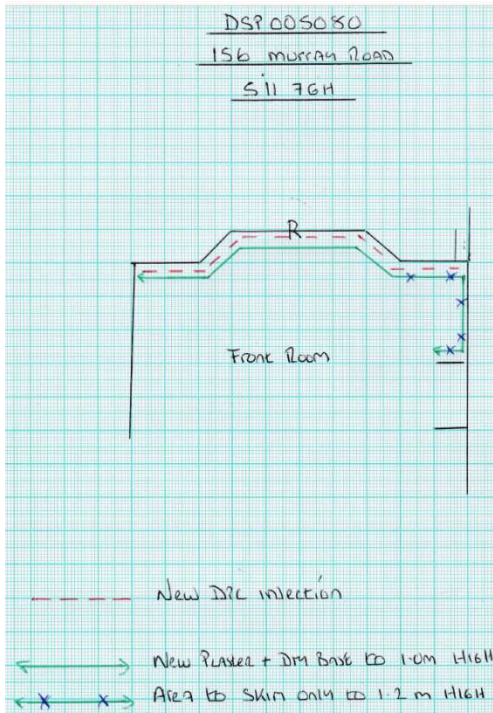


Specialist's Two's report and pertinent points (Fig. 51):

- Recommends removal of the plaster to the front elevation and a chemical injection DPC and tanking installed.
- Notes that there is an existing DPC but advises this is not effective and that it has failed.
- Notes that the garden wall is acting as an abutting structure causing penetrating damp.
- Records high moisture meter readings and diagnoses rising damp.
- Also includes notes about treating walls where moisture readings are low.

The specialist noted the existing DPC but determined that this had failed by using high moisture meter readings. They correctly pointed out that the abutting wall would be a source of penetrating damp but should have expanded on this point. The existing DPC was designed to stop rising damp, so the fact that they have pointed out that it has failed in the same area that they have diagnosed penetrating damp puts one point in conflict with the other.

There is no explanation in the thirteen pages of literature that they sent on how their proposed system works and how it would perform differently to the DPC that they have advised has failed. The comment about treating walls where moisture readings are low is bizarre because low-moisture walls are not defective.



**Rising Damp:**

There was evidence of rising damp to the ground floor walls. This is due to, the apparent absence of an effective damp proof course. Please refer to the areas as indicated on the sketch attached.

See images below:



**Condensation:**

There was no evidence of condensation at the time of the survey.

**Penetrating Damp:**

There was evidence of penetrating damp at the time of the survey caused by the external garden wall acting as an abutting structure creating salt within the internal wall plaster.

**Rising Damp**

At the time of our Installation of a new Damp Proof Course & plastering to the identified ground floor elevations.

**"Dry lining"**

It is important that the existing plaster is removed from the treatment areas and replaced with a material that will prevent hygroscopic salts effecting the wall surface.

Damp recommendations and solutions are as follows: -

- To create a new DPC we will drill and inject the identified areas with a Dry Zone DPC.
- Once the plaster has been removed from the identified walls the exposed brickwork will be treated with a water proofing Dry Base Liquid DPM to the areas / height as indicated on the sketch attached.
- These walls will then be re-plastered to an even height as indicated on the sketch, by using a water proof adhesive to adhere the relevant thickness of plaster board and then "skim plastering to leave a finish ready for final decoration.
- It is recommended that the wall areas indicated on the sketch are re-plastered.

**Treating walls where moisture readings are low and hygroscopic salts are not expected.**

If at the time of the survey our qualified surveyor identifies low moisture readings and there is no visual evidence of hygroscopic salts, there is some advantage in delaying removing plaster and dry lining the affected walls.

The Property Care Association (PCA) guideline is that, by delaying re-plastering, time is allowed for soluble salts to move from the brickwork into old plaster. In addition, if re-plastering can be delayed until after the wall has dried out, the true extent of dampness caused by hygroscopic salts may be more easily established and it may be found possible to restrict the extent of re-plastering.

Remove skirting boards from the treatment areas & set aside. (see above information)

Remove plaster to the heights indicated on the sketch provided.

Install a new damp proof course to all ground floor walls identified.

Treat the exposed brickwork, with a waterproof Dry Base Liquid DPM to the heights indicated on the sketch.

Using a water proof foam adhesive, new plaster board will be applied to the wall area before skimming for final decoration.

Remove debris from site.

Cost for the above damp proofing / plastering – £620.00 + VAT = £744.00

Contract Length – 1 Day

(The contract length is used as a guide and should not be relied upon)

All work is covered by a company guarantee. (see above)

Fig. 51 – Specialist Two – Pertinent Points.

Specialist Three did not produce a report or any recommendations bespoke to the property, just an installation agreement as per Fig. 52. The surveyor was reluctant to discuss any details about the proposal and referred to an email instead.

Their Installation Agreement is on letterhead paper and headed '\*\*\*Damp Specialist Limited DAMP CONTROL'. However in their Terms and Conditions, they state that their system is a 'moisture regulating element' and that it can 'help reduce condensation ...in conjunction with adequate ventilation and heating'. Their brochure explains how their system works and repeatedly states the problems caused by damp but nowhere does it state that it prevents damp. There are test results, but these are based on reducing the RH in the room and not eliminating damp. This highlights the interchangeable way in which damp and condensation are confused by the specialists themselves. Their guarantee is also worded in a convoluted way and is based on the readings taken from an electronic moisture reading machine.

Of the specialists that inspected, Specialist Three is the only one who did not diagnose rising damp and in this respect they are correct. Nonetheless, they are still want to install their system to 'help' with the problems. Whilst increasing the ventalation in a home is unlikley to cause any problems, the system is unnecessary.

**UK Ltd.** Installation Agreement

1 1/2 DISCOUNT FOR  
INSTALLATIONS COMPLETED BY  
31.7.19,

**DAMP CONTROL**

1 UK Ltd., Registered address:  
("the Contractor") Company No: VAT No:

2 Mr/Mrs SIMON HOLLIS  
Address 156 MURRAY ROAD  
Town SHEFFIELD  
County S. YORKS Postcode: S11 7GH.  
Telephone 07947 955 970 ("the Customer")

Agree as follows:

1 The Contractor at the request of the Customer has attended at the Customer's premises at (site address) 156 MURRAY RD S11 7GH ("the Site") on the date below shown as the Inspection Date and has provided the Estimate below shown.

2 The Contractor is willing to supply and install the below upon the terms of the Installation Agreement at the Site in the outside wall(s) of which the length is estimated

3 The estimate - all net prices are subject to addition of VAT at 20%

3.1 Estimated length of wall: approximately 16.4 linear metres

3.2  Brick £134.00  Stone £164.00 £ 2197.60  
 Extra Hard Stone £178.00 (flint, granite, concrete blocks etc.)  
 Minimum Order Value Brick £1,700.00 (10m or less)  Minimum Order Value Stone £2,000.00 (10m or less)

3.3 Special Equipment:  Scaffold Tower  Scaffolding  Other

3.4 Rendered  Yes  No

3.5 Chemical injection - £96.00 per linear meter for ..... metres £ .....  
(installed on internal walls only in conjunction with)

3.6 Installation length of wall(s) less than 15 metres - add small works charge -  £95.00 £ 65.00

3.7 Contractor to remove rubble or bagged waste from the site - add service charge -  £65.00

3.8 Cladding / Hanging Tiles - extra net charge per linear metre £15.00 for ..... linear metres £ 256.20

3.9 Total net Estimated Price based on the above items: £ 452.52

3.10 Value added tax at 20% on Total net Estimated Price: £ 90.51

3.11 Total estimated Price: £ 543.03

3.12 Deposit (10% of the Total Estimated Price): £ 54.30 Balance due on Completion: £ 488.73

4 This Estimate is valid for 90 days from the Inspection Date and does not include provision of scaffolding (if required), to be provided by the Customer at the Customer's own cost.

5 The installation date will be approximately 28 days after the Customer's agreement date subject to the Deposit above shown having been paid to the Contractor.

6 The Installation Agreement incorporates the whole of the text in this document and the terms and conditions set out overleaf and the Customer by signing below so acknowledges and accepts. The contract between the Contractor and the Customer is formed when the Contractor receives the Installation Agreement signed by the Customer and the obligations of the Contractor shall not be binding upon the Contractor until the Deposit has been paid and only then shall time and time and place of work obligations.

Signature: ..... Signature: .....  
Print name: ..... For and on behalf of the Contractor  
On ..... The Agreement Date, for and on behalf of the Customer

All work is carried out externally. We don't need access to the inside of your property. There is no mess, no need to replaster or redecorate. Work speed: it usually takes just one day to install the the [ ] System in a typical house. It works and it goes on working for life.

That's why we offer a lifetime guarantee - something other systems simply can't do! The [ ] System is chemical free and eco-friendly. Other methods of damp prevention try to block out the damp. Our system actually removes moisture from your property. \*

 What do we mean by this?

Traditional approaches to damp-control aim to create a barrier between your house and the source of the damp. The problem with this approach is two-fold. First, it doesn't remove the moisture. It simply forces it to go somewhere else. This can mean that you damp-proof one area only to find damp suddenly appears in another. Second, the barrier will gradually break down. As a result the damp (which has never really gone away) is likely to reappear - it's just a matter of time.

Developed in Holland and backed by more than 30 years' experience, the [ ] System offers a simple, permanent solution to problems caused by damp.

It is completely environmentally friendly, doesn't use chemicals and comes with a lifetime guarantee.

Winner of the Best Product of the Year Award in the Netherlands 1988 and the Chamber of Commerce Award "Best British Enterprise 2002".

7. Guarantee
- 7.1 The installation of the System involves the installation of moisture regulating elements in the brickwork. The moisture regulating elements are designed and guaranteed to last for at least the lifetime of the brickwork in which they are installed. If a moisture-regulating element is defective, the Contractor will replace it to ensure the continuing operation of the System. Provided that the customer shall have accepted and paid for the installation of the System fully in accordance with the recommendations of the Contractor (including as to extent of installation), the additional guarantee set out in 7.2 below shall also apply. Chemical Injection is not guaranteed under the terms of this contract.
- 7.2 The Contractor guarantees to the Customer that upon 12 months following the installation of the System the excess moisture content in the brickwork in which the System is installed will be reduced as measured by the Contractor using an electronic conductivity moisture reading machine, and if it is not, the Customer shall be entitled to its money back provided that the Customer brings any written claim under this guarantee within 13 months of installation of the System. The Contractor will carry out one free re-check only, at 12 months. It is the customer's responsibility to call the contractor at 11 months to arrange for this service. A fee of £100 + VAT will be charged for any inspection other than the pre-booked free re-check.
- 7.3 The system can help to reduce condensation, however, only in conjunction with adequate ventilation and heating.
- 7.4 Any changes to paperwork (such as change of ownership) will incur a standard administrative charge of £45 + VAT.
- 7.5 The Contractor shall not be liable under the above guarantees where the claim has arisen because of:
- 7.5.1 interference by the Customer or a third party with or modifications to the System;
- 7.5.2 application by the Customer or a third party of any material such as a coating to the inner or outer surfaces of the walls which are treated with the System which could prevent the walls from breathing;
- 7.5.3 failure by the Customer to carry out or comply with any recommendations of the Contractor;
- 7.5.4 failure of the Customer to keep the property in which the System has been installed in a dry waterproof condition and adequately maintained; without limitation "adequately maintained" in these Conditions shall include proper maintenance of the structure of the property in which the System has been installed, adequate sub-floor ventilation of such property and ensuring that the soil level outside the property does not exceed the level of any damp course and/or internal floor level;
- 7.5.5 Pre-existing structural defects.
- 7.6 The house must be kept in normal living conditions, be adequately ventilated especially in washing areas and the temperature must not be lower than 18°C on average.
- 7.7 We always recommend the [ ] System should be installed in all of the external walls to be fully effective. If the system is not installed in all of the external walls, at the customer's request, the 12 months money back guarantee is not applicable. The customer will also not be entitled to the 12 months free re-check.

Fig. 52 – Specialist Three – Pertinent Points

Specialist Four sent over 23 pages of literature after their survey. Interestingly, there is no mention of their findings on site, just their proposals (Fig. 53). They recommended a DPC to front elevation and vertical DPC on the front right-hand wall. Although diagnosed when on site, there is no mention of rising damp or indeed anything else related to the property in the literature sent. It is difficult to determine whether it is good that they have not used the moisture meter readings to state that there is rising damp, but on the other hand, what is their proposal meant to be addressing if not this?

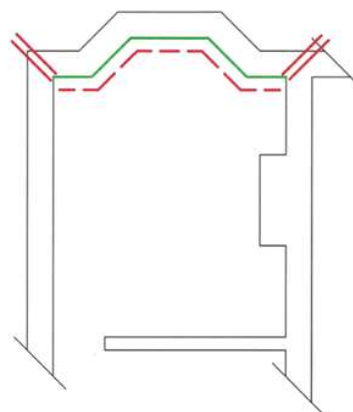
If the works were to be undertaken, their guarantee would not be valid as, under their terms and conditions, they only issue their guarantee where the ground on both sides of the wall is level, which is not the case (but this was not noticed by their surveyor).



**SPECIFICATION OF WORKS**

Quot. Ref	Works	Net Price	VAT	Total Price (including VAT)
a)	<p>Install a chemical damp proof course incorporating the DryWall Diffusion System to those walls indicated on the enclosed drawing.</p> <p>Hack-off and remove existing plaster from the areas and heights indicated on the drawing and clear resultant debris from site. Apply the DryWall Coating System to these walls.</p> <p>Our quotation allows for up to 5 square metres of rendering to a nominal thickness of between 12 to 20mm. Any additional areas and dubbing out in excess of 20mm will be charged as an extra at pro rata rates.</p> <p>Necessary dubbing out will be charged at £20.00 + V.A.T. per square metre for each additional 15mm thickness or part thereof.</p>	£ 743.00	£ 148.60	£ 891.60

Ref: 076004001  
 Date of Survey: 16/07/2019  
 Surveyor: Sam Walsh  
 Property Address: 156 Murray Road, Sheffield, S11 7GH



Unless otherwise stated in the report, where our work is to be carried out internally we require you to arrange for the removal of carpets and furnishings, together with all skirtings, fixed units and appliances, from walls designated for damp proof course insertion and/or replastering. This work MUST be done prior to our commencement.

NOTES

<p>Y timber floor</p> <p>S solid floor</p>	<p>DryWall plaster 1.0m high, unless otherwise stated</p>	<p>DPC</p> <p>vertical DPC</p>	<p>high ground or floor level</p>
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NOT TO SCALE

**IMPORTANT INFORMATION – Client to Note**

**Preparation by Client**

You should arrange for the following preparatory work to be undertaken in the treatment areas, as stated below and/or as identified on the attached sketch. This should be completed prior to our arrival on site.

- Removal of floor coverings
- Removal of skirting boards
- Removal of radiators

If you have any doubts concerning preparation, please don't hesitate to contact our office for clarification.

Please do not arrange for these items to be re-instated until the completion of the contracted works.

**Guarantee**

Upon completion of the contract our **20 Year Guarantee** will be issued, protecting you against the recurrence of dampness rising through our damp proof course, offering you peace of mind for your property in the future. A specimen guarantee is available on request or can be viewed at [www.drywall.com](http://www.drywall.com).

Whilst any general building and ancillary works undertaken by are excluded from any treatment guarantees issued, you will of course be protected by your statutory rights under The Consumer Protection Act 1987.

**External renders**

The external render should be removed from the area where we propose to insert the DPC to prevent bridging and to expose the mortar joint chosen for the treatment. It may subsequently be replaced either by a bell casting above the DPC line or a sand and cement render incorporating a waterproofing agent. It is the client's responsibility to undertake this work, unless otherwise stated.

**Drying out**

Where it is not possible to gain access to both sides of a party wall or flank wall, our Guarantee would be issued on the assumption that the floor or ground on both sides of the wall would be at the same level. We therefore recommend that the client arranges for these levels to be checked prior to the damp proof course being installed.

Fig 53 – Specialist Four – Pertinent Points



There is little to discuss for Specialist Five as Fig. 54 shows all that was provided. Rising damp was diagnosed at the inspection; however, the specialist has sent no information with which to back up their proposed treatment. Nothing is mentioned by way of how the works would take place or any guarantees provided.

Sheffield  
SY  
0114  
@ .co.uk  
http://www. .co.uk



VAT Registration No.:

**ESTIMATE**

**ADDRESS**  
Simon Hollis  
156 Murray Rd, Sheffield  
S11 7GH, UK

**ESTIMATE NO.** 1587  
**DATE** 15/07/2019

**PROPERTY**  
156 Murray Rd, Sheffield S11 7G

ACTIVITY	QTY	RATE	VAT	AMOUNT
<b>Safeguard Replastering System To Lounge</b> Remove all contaminated plaster back to masonry. Treat masonry with anti sulphate solution then install BBA approved safeguard fast drying system to areas illustrated on the floorplan.	1	400.00	20.0% S	400.00

UTR No.		<b>SUBTOTAL</b>	400.00
Company No.	limited	<b>VAT TOTAL</b>	80.00
Account number		<b>TOTAL</b>	<b>£480.00</b>
Sort code			
VAT number			
Please make cheques payable to: proofing limited.			

VAT SUMMARY	RATE	VAT	NET
VAT @ 20%		80.00	400.00

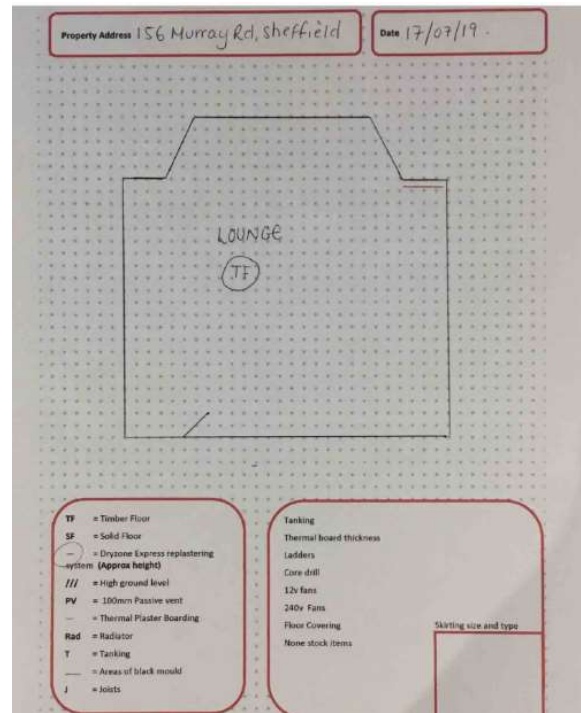


Fig. 54. Specialist Five – Pertinent Information.

Specialist Six advised that high moisture meter readings and salts indicated rising damp. There were no salts present on the wall, just some flaky white emulsion. If there were salts on the wall, these could give an artificially high moisture meter reading that could be interpreted as damp by the unskilled surveyor (see Fig. 55). Interestingly, their literature advises homeowners “*can be sure of the correct diagnosis and effective treatment*”.

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**The use of Moisture Meters**  
to establish the presence of Rising Damp



The electrical method does not give a direct reading of moisture content and its value depends much upon the ability of the user to interpret the results obtained by its use. In experienced hands it is a useful tool but it can give rise to confusion and incorrect diagnosis, particularly where ground salts are present or the substrate being tested is itself a conducting medium e.g. contains carbon granules or a foil backed paper has been used on the wall, or where the dampness is due to condensation.

Electrical methods are not satisfactory in order to check the efficacy of a new dpc in a building that has suffered from rising damp. In such cases, salts will be present, to a greater or lesser extent, whether the new dpc is effective or not. The presence of these salts alone can produce high readings.

Fig. 55 – 2013 PCA Guidance.

The specialist recommended installation of a chemical DPC as per Fig. 57. This is interesting as it is recommended to only go half way round the bay window. As it was not mentioned at the inspection or in the report, it is assumed that the surveyor is unaware of the existing DPC in the bay. If their proposals were implemented, any rising damp would surely just go around the proposed installation.

The company literature states that they are members of the PCA and work is carried out to their strict code. Their recommendations explained what they were going to do to the property but not why or how the works would remedy the problem. They also claim several benefits of using their system (Fig. 56). There is no explanation provided as to why these benefits are preferential to the systems offered by other providers in the marketplace.

The overwhelming benefits of DriWise™ opposed to other systems are:-

- Cleaner
- Safer
- Improved Performance
- Guaranteed
- Exclusive Treatments
- Efficient

Fig. 56 – Specialist six's benefits

**Observations**

Inspection of the internal wall surfaces of the property was completed using an electronic moisture meter. After consideration of the instrumental readings, soluble salt contamination and other relevant factors, it is assessed that various walls within the property are affected by rising dampness .

The installation of a chemical damp proof course is recommended to the areas indicated on the enclosed sketch plan.

We also recommend that the existing wall plaster is removed to a minimum height of **1 metre** and the walls are then re-plastered in accordance with the enclosed specification. This is to prevent possible future problems with hygroscopic salts spoiling the plasterwork and decoration.

**Recommendations**

Based on our visual inspections and the instrumental readings obtained at the time of our survey, we recommend the installation of our DriWise™ damp proofing system to the walls marked on our attached sketch.

The damp proofing system will be injected directly into the first horizontal mortar joint above the internal ground floor level or 150 mm above the external ground floor level, whichever is the higher, or as directed separately by our surveyor.

The overwhelming benefits of DriWise™ opposed to other systems are:-

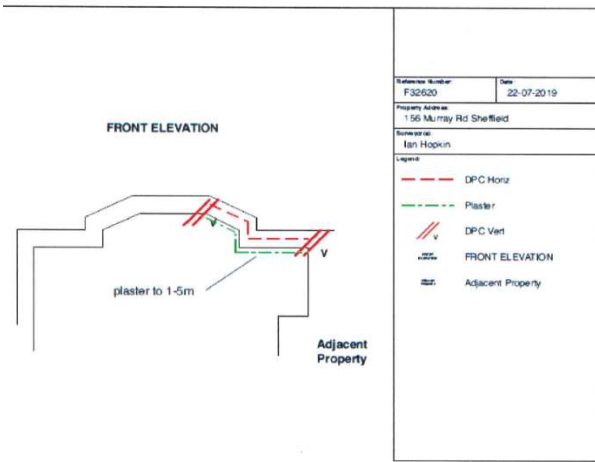
- Cleaner
- Safer
- Improved Performance
- Guaranteed
- Exclusive Treatments
- Efficient

**RE-PLASTERING**

Re-plaster the treated walls to the heights and areas indicated on the sketch plan.

As moisture rises 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. Certain of these salts, in particular chlorides and nitrates, are hygroscopic; that is they are capable of attracting and absorbing moisture from the atmosphere when the relative humidity is high.

Please note, our plastering quotation is based on the assumption that the existing wall plaster is only 18mm thick. If the wall plaster is greater than this depth, an additional amount will be added to your final invoice of £ 30per square metre of plaster work for every additional 18mm thickness or part thereof and £ 30per square metre where waterproofing is to be applied.



**Quotation – Client's copy**

<b>Client's Address:</b> Mr Simon Hollis 156 Murray Road Greystones Sheffield S11 7GH	<b>Property Address:</b> 156 Murray Road Greystones Sheffield S11 7GH	<b>Branch Office:</b>     Sheffield Tel: 0114
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<b>Date of report:</b> 24 July 2019	<b>Our Reference:</b>	<b>Inspected by:</b>
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**TO CARRY OUT WORKS AS DETAILED IN OUR REPORT**

Detail of Works	Net	VAT	Total Price	✓
*Install Damp Proof Course	£155.15	£31.03	£186.18	
Hack of original Plaster				
Replaster	£393.64	£78.73	£472.37	

All the above items where marked \* are inclusive of our 20-year Guarantee

**Also available GPI 10-Year Guarantee Insurance, Including 12% IPT**  
 The figure comprises of the following:-  
 (Insurance Premium £35, Admin £35 & Insurance Premium Tax £8.40)      **£78.40(Damp)**      YES

Fig. 57. Specialist Six – Pertinent Points.

Overall, every specialist recommended their own remedial packages of works, five being chemical injection DPC and the other a ventilation-based system. None of the specialists noted the building defects despite a number of their guarantees being invalid without the building envelope being in full repair.

To establish if there was any need for these treatments, the wall was carbide tested to see if it was damp.

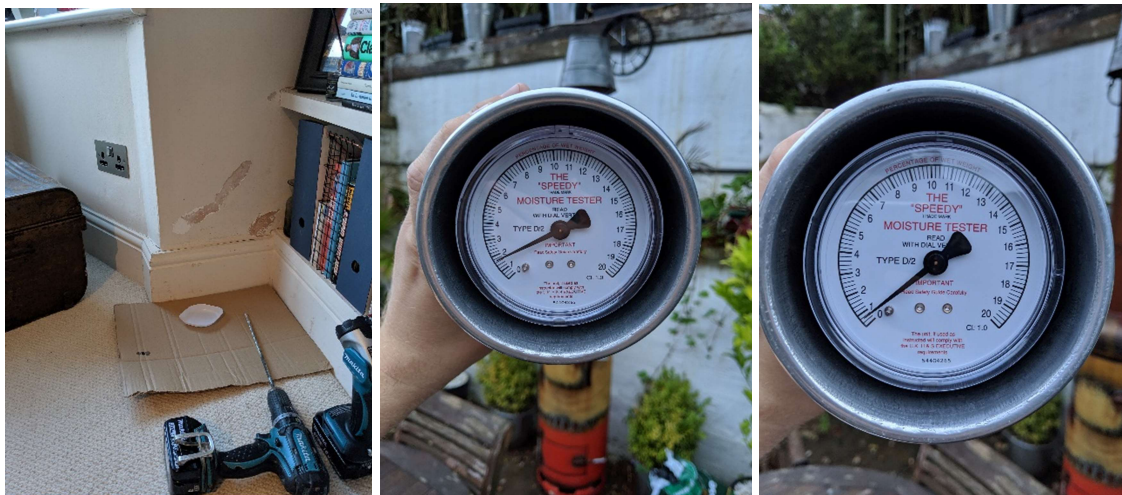


Fig. 58 – Carbide Testing

When tested, the lower area of the wall recorded 1.7% moisture content. A second sample was taken at 1500mm which recorded 0.3% moisture content.

**Table 3.2 Typical action points based on moisture content of building materials**  
*Timber was measured by electrical resistance, the remainder by % volume*

Material	Damage unlikely	Action required	Damage likely
Timber (electrical resistance)	<18	>20	>24
Brick (calcium silicate)	< 8	>9	>15
Brick (engineering)	< 4	> 6	> 8
Brick (commons)	<10	>14	>20
Brick (facing)	< 8	>10	>20
Concrete block (high density)	< 8	>12	>15
Concrete block (low density)	< 6	>10	>12
Render	< 3	> 5	> 8
Plaster	< 2	> 3	> 4

Fig. 59 – BRE 466 Action Points.



Fig. 59 notes action points based on percentage moisture content. The BRE is a credible source of information and as they advise that damage is unlikely below 10%, no further action needs taking. If higher moisture readings were noted at the base of the wall, gravimetric profiling would have been undertaken.

### 4.3 Laboratory Testing

Laboratory testing was undertaken to try and prove or disprove the existence of rising damp and testing was initially going to be confined to this. As interest in this area developed, a number of valuable additional tests were undertaken. This practical element to the study has provided the best quality primary data although it has gone beyond the scope of the original aims and objectives. The data from these experiments will be analysed on an individual basis with an overall conclusion presented later.

All tests were performed in an identical manner. First, electronic moisture meter readings were taken with a Protimeter Surveymaster and recorded. (On some of the dry bricks the Protimeter would not take a reading. Where this is the case DNR has been recorded.) Then a sample of the brick was taken using the cold drill method and tested straight away using a Speedy carbide meter as per the manufacturer's instructions.

#### 4.3.1 Submersion

After 45 hours in the oven, the brick weighed 3,357g. After being submerged for six weeks, the brick was removed from the bucket and it weighed 3,116g which represents a loss of 241g. This experiment did not go as intended. It was expected that the brick would be heavier as the dried out porous clay took on moisture. The only explanation that can be offered is that the scales were incorrect and as the readings were not compared until the experiments had been dismantled this was not picked up on until it was too late. Unfortunately, therefore, this part of the experiment has yielded a null result.



Fig. 60 – Carbide Test – Submersion.

Carbide testing (Fig. 5) gave a moisture content of 8.9% which is considered to be on the verge of concern by the BRE. A value of 8.9% equates to 277.5 grams of moisture and is on the lower side of what was expected based on the porosity testing undertaken previously which gave readings for similar bricks of between 8.49% and 26.05%. The figure may have increased over a longer test period.

#### 4.3.2 Brick on Brick

The top and bottom brick were tested with a Protimeter and carbide tester, results are shown in Table 8.

Table 8 – Brick on Brick.

Brick on Brick		
	Protimeter	Carbide
Top	DNR	0%
Bottom	42.3	5%



Fig. 61– Brick on Brick.

The results for this test (Table 8 and Fig. 61) were as expected: the bottom brick absorbed around 194g of water whilst the top brick did not absorb any. Despite the two flattest bricks being chosen, the gaps where they did not sit flush allowed the bricks to breathe and no moisture transfer occurred. This is difficult to apply to a real-life situation as you would not be able to build a stable structure with bricks of this size without using mortar.

The more interesting result is the disparity of 37.3% between the Protimeter reading and the carbide reading. Whilst this would be noted as damp in many surveys, the carbide test confirmed that the moisture content is not a cause for concern.

#### 4.3.3 Brick on Sand

The top and bottom brick were tested with a Protimeter and carbide tester. The results are shown in Table 9 and Fig. 62.

Table 9 – Brick on Sand.

Brick on Sand		
	Protimeter	Carbide
Top	18.9%	1.6%
Bottom	33.4%	2.2%
Sand - Edge	20.8%	n/a
Sand - Centre	30.8%	n/a
Dowel	20.0%	n/a



Fig. 62 – Brick on Sand.

The results of this experiment and the next (section 4.3.4) support Howell’s theory that the cement content in mortar makes it impermeable to moisture. Whilst a significant amount of moisture did not track up through the top brick, the sand was taking on a lot of water, so much so that in the last week of testing all the water from the tray was absorbed (this accounts for the top brick having a higher moisture content than the bottom one and is a lesson learned if this was to be done again).

Again, the results shown by the Protimeter are far in excess of those recorded by carbide testing.

#### 4.3.4 Brick on Mortar

The top and bottom brick were tested with a Protimeter and carbide tester, with the results shown in Table 10 and Fig. 63.

Table Ten – Brick on Mortar

Brick on Mortar		
	Protimeter	Carbide
Top	10.9%	0.2%
Bottom	31.9%	10.8%
Mortar		
Course 1	42.5%	
Mortar		
Course 2	19.8%	
Dowel 1	10.4%	
Dowel 2	11.9%	
Dowel 3	12.8%	



Fig. 63 – Brick on Mortar.

The outcome of this experiment is perhaps the most significant. The bottom brick took on a significant amount of moisture, but this did not transfer to the top brick. This replicated the results in Howell’s testing but together with the experiment above, goes a step further to prove that the cement in the mortar creates an impervious barrier to moisture.

#### 4.3.5 Engineering Brick

Bricks from the three courses were tested with a Protimeter and carbide tester, with the results shown in Table 11 and Fig. 64.

Table 11 – Engineering Brick.

Engineering Brick		
	Protimeter	Carbide
Top	DNR	0.0%
Centre	DNR	0.0%
	31.4%	3.0%
Bottom		
Mortar	41.0%	n/a
Course 1		
Course 2	16.1%	n/a
Course 3	13.8%	n/a
Dowel 1	29.9%	n/a
Dowel 2	10.8%	n/a
Dowel 3	8.1%	n/a



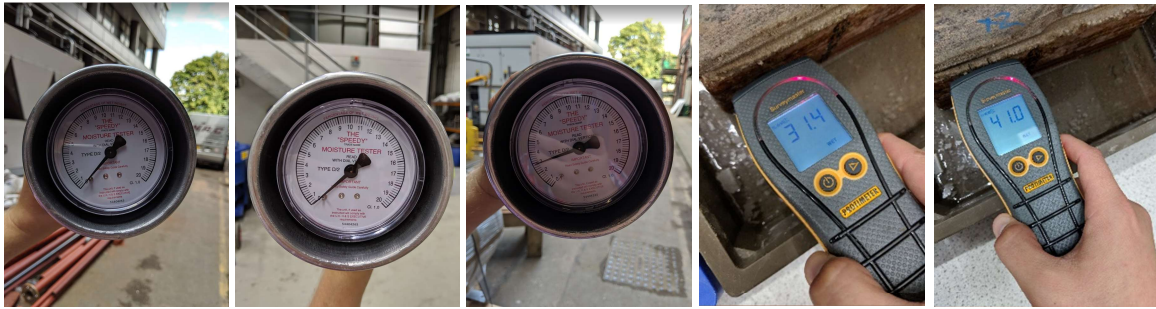


Fig. 64– Engineering Brick

This experiment went as predicted: moisture from the bottom brick did not travel into the engineering brick or top brick. As such, there should be no need for a chemical DPC to be installed above an engineering course.

#### 4.3.6 Slate

The top and bottom brick were tested with a Protimeter and carbide tester. The results are shown in Table 12 and Fig. 65.

Table 12 - Slate

Slate		
	Protimeter	Carbide
Top	9.6%	0.0%
Bottom		8.8%
Slate	11.0%	n/a
Mortar		
Course 1	47.4%	n/a
Dowel	8.8%	n/a



Fig. 65 Slate

The results of this experiment were less predictable: surveyors tend to agree that slates continue to be an effective physical DPC, whereas damp specialists argue that they become ineffective with age. As the results show, the bottom brick took on a significant amount of

moisture but this did not track through the slate to the top brick. This proves that despite being about 50 years old, these slates still provide an effective barrier to moisture.

#### 4.3.7 DPC

The top and bottom brick were tested with a Protimeter and carbide tester. The results are shown in Table 13 and Fig. 66.

Table 13 - DPC

DPC		
	Protimeter	Carbide
Top	9.0%	0.0%
Bottom	30.8%	2.6%
Mortar		
Course 1	54.6%	n/a
Mortar		
Course 2	13.8%	n/a
Dowel 1	DNR	n/a

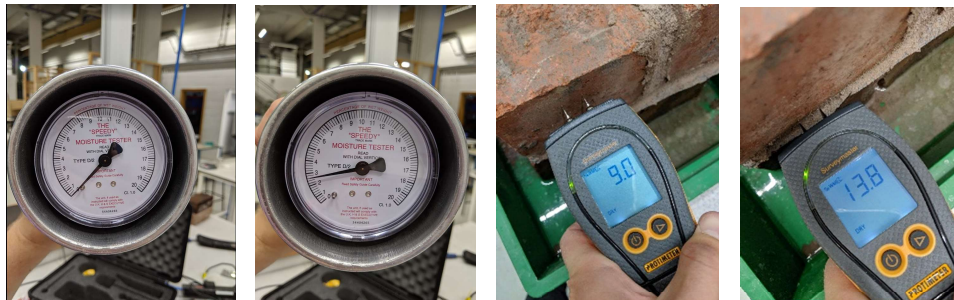


Fig. 66 – DPC.

This experiment went as expected. The bottom brick absorbed moisture but this did not transfer through the DPC to the top course proving its effectiveness.

These experiments have also resulted in a number of other interesting findings.

First, all the bricks are of a near identical size and were all stood in the same amount of water for the same time yet absorbed different amounts of water, from 2.2% to 10.8%.

In all the experiments, the mortar was very much the carrier of the moisture, which could be tracked by comparing Protimeter readings going from the first course to the second and third. It is recognised that this may have started to equalise over a longer test period.

No correlation could be found by comparing the Protimeter readings to the carbide readings. This demonstrates that when using this equipment for a survey it is incorrect to state that the high readings mean that the wall is damp as this is not always the case. This finding is analysed more below.

#### 4.3.8 Porosity

Porosity testing was undertaken with nine bricks and the results (Table 14) spanned a broader range than was expected. The results are presented below.

Table 14– Porosity Calculations

Brick Number	Brick Weight		Saturated Weight	Suspended Weight	Water in Pores		Water in Pores	Suspended Weight	Porosity	Protimeter Reading	Difference
	10th July	12th July									
			g	g	g		cm <sup>3</sup>	cm <sup>3</sup>			
5	3619	3563	4017	1743	454	=	454	1743	26.05%	34.60%	8.55%
9	3930	3926	4223	1810	297	=	297	1810	16.41%	33.40%	16.99%
10	3870	3838	4307	1899	469	=	469	1899	24.70%	30.40%	5.70%
13	3956	3906	4283	1867	377	=	377	1867	20.19%	32.80%	12.61%
14	4273	4235	4568	1992	333	=	333	1992	16.72%	22.90%	6.18%
18	3730	3687	3863	1664	176	=	176	1664	10.58%	24.70%	14.12%
19	3990	3960	4317	1864	357	=	357	1864	19.15%	27.40%	8.25%
21	4475	4425	4584	1872	159	=	159	1872	8.49%	25.20%	16.71%
27	3845	3780	3957	1631	177	=	177	1631	10.85%	28.30%	17.45%

Having studied the results of the porosity testing, it has been hard to establish any form of meaningful correlation. Whilst this may seem like a failure, in the context of the wider study the results are actually very useful for demonstrating a number of things.

There is a lack of uniformity. The majority of the bricks were all made at the same brick works at the same time yet there is a variance of 862g between the lightest and heaviest bricks after 45 hours in the oven.

It was expected that the biggest brick would be able to absorb the most moisture. This theory was proved incorrect as the heaviest brick was the least porous of the test batch with 8.49% and the lightest brick was the most porous at 26.06%. This is useful because it demonstrates the varied properties of bricks that look identical. This would be relevant if you were installing a chemical injection DPC as some bricks may need to take on over one hundred percent more chemical than others in order to fill their pores.

The most significant findings of this experiment are the comparisons between the electronic moisture meter readings and the carbide tests. Whilst there is little correlation when comparing the readings, the Protimeter is consistently recording higher than the true moisture content. This is significant because as we have seen, the electronic moisture meter is nearly always used when undertaking residential surveys and as such the results it produces are then fed back to homeowners. When its results are incorrect, the resulting report is

incorrect. Protimeter produce a conversion chart that is supposed to convert the WME reading into a figure that is applicable in masonry. This could have some merit if the Protimeter was consistently out by roughly the same amount, but as this experiment shows, it is anywhere from 6% to 17% out so a linear conversion could simply not be correct.

#### 4.4 Interviews with Surveyors

As noted in the Literature Review, testing for damp is a sometimes-controversial subject. Some of the surveys above make reference to how the surveyor has tested for damp and it was hoped to get further opinions on this by speaking to surveyors first hand. Unfortunately, the response rate was lower than expected. Useful responses were received from a residential surveyor (RS) and a building surveyor (BS) and the data collected from the surveys above was better than expected, and as such an informed opinion could be reached.

On the subject of testing for damp, the respondents both went about this in different ways. RS checks ventilation and uses an electronic moisture meter to take tests and maps the results accordingly whether undertaking a HomeBuyers or building survey. BS stated that they only undertook building surveys and use a carbide meter. The BS advised that they were aware of Protimeters and understand when they should be used.

When asked about defect diagnosis and damp specialists, the BS said “We would diagnose the defect ourselves as we are chartered building surveyors”. RS took a different approach commenting:

*“If you find damp or salt contamination and its bad enough to need treating – get specialists in to confirm it and confirm costs for repair. Only mention that if you sure there is a problem”.*

When the BS was asked if they would ever recommend a specialist, they advised that if they did, it would not be a materials supplier who had a vested interest in diagnosis.

The BS and the RS had opposing views on rising damp. The BS said

*“I am not convinced on rising damp and have not come across it. It [the term ‘rising damp’] is often misused or diagnosed when people don’t understand material makeups, how materials interact and quite often the implications of changes installed or created by homeowners.”*

When speaking to the RS about this, he disagreed. Upon mentioning some of professionals that have been critical of the existence of rising damp he described one of these as an *“Absolute tosser who has done so much bad damage to the damp proofing industry beyond what rubbish contractors have already done and is absolutely a charlatan.”*



On the question of existing DPCs, both the BS and RS described how they would methodically inspect them and note their findings. RS said they would look at type, condition and evidence of salts in the wall which would be evidence of damp. They commented that if there was already a bitumen DPC, why is there a chemical DPC above it as they had not seen a bitumen one fail. BS added that they would never advise retrofitting a DPC whereas RS was happy for the specialist to specify a system that they thought would resolve the problem.

Both surveyors demonstrated conscientious inspection methods and defect diagnosis techniques. Whilst their opinions differ on some points, they were able to provide strong justification for their methods.

RS said that they had undertaken circa 40,000 residential surveys over the last 35 years and have gone from undertaking 20 plus a week down to just five because of the increased amount of information that they now include. This news is welcomed and demonstrates that in a market where the client instructions are often price driven, some professionals are prioritising the quality of their output. Although they recommend use of damp specialists, they state that this is because they want their client to have an idea of remedial costs before they commit to the purchase – this is sensible advice.

## 5 Conclusions

In conclusion, this study has established that there is confusion in the surveying profession about the existence of rising damp and in some cases, incorrect advice is being provided to homeowners. This has been concluded by answering the aims and objectives detailed in Section 1.

Establish what information and recommendations surveyors are providing to homeowners – this objective was fully met by analysing surveys and literature and interviewing homeowners and surveyors. The outcomes of this are:

- Surveyors are using the wrong equipment to test for damp.
- The incorrect equipment is leading to incorrect information being included in surveys.
- Surveyors are relying on damp specialists that are often undertaking the same tests as the surveyor.
- The homeowner is being provided with confusing advice that is often not understood.

Examine how damp specialists are conducting their surveys and what information they are providing to homeowners – this objective has been fully met by reviewing the specialist's literature and analysing their survey skills and proposals. The outcomes of this are:

- The specialists' survey skills often fall below those of the surveyor recommending their instruction. Their diagnosis techniques are based around the incorrect use of an electronic moisture meter. No attempt was made to investigate defects with the building fabric or recommend more accurate testing following high electronic moisture meter readings.
- In some cases, damp specialists are selling remedial treatments to homeowners for walls that are not damp and justifying their diagnosis by describing high moisture meter readings as rising damp.
- Their terms and conditions and guarantees are often not fit for purpose and can prove problematic when homeowners try to make a claim.
- A retrofit DPC should not be the first course of remedial action taken to remedy the symptoms of rising damp.

See if rising damp can be created in a laboratory and how effective different types of damp-proof course are. This objective has been fully met by undertaking a number of experiments. The outcomes of these experiments are:

- Rising damp could not be created in the laboratory. Based on literature reviewed and the experiment duration, it could not be proven definitively that rising damp does or does not exist. On the basis of the findings of this study, it has been concluded that rising damp does exist, but only in a very specific set of circumstances.
- Both traditional slate and engineering brick DPC's perform as well as their modern-day PVC equivalents in preventing vertical moisture transfer.

Compare the results from porosity testing to the results from electronic moisture meter testing to determine if the correct approach is being used to diagnose if a property has damp. This objective has been fully met by analysing the test results in Case Study Two and in the laboratory. The outcomes of these experiments are:

- No relationship could be established between readings taken with an electronic moisture meter and a calcium carbide meter.
- No relationship could be established between readings taken with an electronic moisture meter and porosity testing using a vacuum chamber.
- Using an electronic moisture meter does not provide accurate damp readings and should not be used to advise of the presence of rising damp.

As a result of this study, a number of areas of change should be implemented. Some initial recommendations are:

- Surveyors should be reminded of the limitations of the electronic moisture meter. If they are using one of these devices and high readings are detected, this is what should be noted in the report. High moisture readings should not be confused with and noted as rising damp. With this in mind, if the surveyor is minded to recommend further testing by a specialist, they should highlight to the prospective homeowner that the specialist should undertake carbide testing, salt and nitrates testing and if necessary gravimetric testing. It is simply pointless for the specialist to come out with an

electronic moisture meter, perform the same tests as the surveyor and sell the homeowner a range of treatments.

- The RICS should insert something similar to the above into its 'What to do Now' standard text at the back of HomeBuyer reports.
- Retrofit damp treatments should be independently tested and should have their own standards for both the product and the installation.
- Guarantees for retrofit products should be absolute and should not contain numerous caveats that are not checked for at the point of survey. For example, it does not seem ethical that a damp specialist can survey the property with an electronic moisture meter, sell remedial treatments and then insist on carbide testing if there are any problems once the system has been installed.

Whilst a significant data pool has been gathered for this study, there have been some limitations. Bar the information from one damp specialist, all the literature has been from UK sources. Non-UK sources have not been intentionally excluded; however, few credible authors have been identified in the field.

Laboratory testing was undertaken over a six-week period. Different results may have been obtained over a more prolonged period of observation.

Surveyors were interviewed and their opinions contributed to the findings of this study. A more comprehensive understanding could have been achieved by shadowing them on both the inspection and write up of their surveys.

The aims and objectives of this study have been met with the research undertaken, however the subject area is far reaching and if further research was to be undertaken, it would be interesting to look at the following:

- One of the surveyors interviewed put the author in touch with Bryan Hindle, Managing Director of Brick-Tie Preservation – his company undertakes a lot of remedial work on behalf of house builders and insurance companies where original damp treatments have failed. An informative study could be undertaken on incorrect specifications and failed treatments, and Bryan would certainly be one of the key contacts to speak to in this area.

- Whilst reviewing the guarantees and terms and conditions provided to the researcher by the damp specialists a number of the requirements were concerning. This concern is supported by the finding of the literature review and data collection which notes the problems some customers have had claiming under the specialists guarantees. An investigation could be undertaken based on whether these guarantees can be relied on and claimed under as they are often required by the lending institutions when taking out a mortgage or releasing a retention.
- The UK damp industry is not mirrored in other countries. It would be fascinating to undertake a similar study to this one but based on findings from say mainland Europe where construction and climatic conditions are similar.
- In this study, only a Protimeter has been used to take moisture readings. When the damp specialists came out, two of them used a Sovereign Quantum moisture meter. Sovereign advise that this 'is capable of measuring the moisture content of various sub-straights' but could not elaborate on this when contacted directly for comment. Test readings from both meters could be compared to see if one is more accurate than the other.
- Whilst the BRE approve of the use of chemical DPC's there are a number of other systems like Aquapol, Schrijver and Lectros that have no approved testing to back up their treatments effectiveness. The literature review notes the action that has been taken by the Advertising Standards Agency when instructing Frank Schrijver to amend their advertising as they were unable to back up the claims. If there is no evidence that these non-traditional systems work, should the ASA, Trading Standards and the Government be doing more to stop them being sold as a remedy to rising damp?

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## Appendices

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As some of the Appendices contain personal and confidential information, these have been edited with a \* to denote this or removed with the use of the rubber tool in Paint.



Standard / BTL Mortgage Valuation

Case Ref: 83402576	Is the Property a Suitable Mortgage Security in accordance with the bank's guidance? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Applicant(s) Name(s) Mr	If No, please explain why the property is not suitable and leave remainder of form blank.
Address of Property  SHEFFIELD	Was the address in the instruction correct? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Postcode	If No, please correct the address and provide explanation below:
If New build, plot number	Is the instructed Purchase Price / Estimated value correct? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
New and Recently Built, Converted and/or Refurbished property	If No, please provide details:
Is the property newly built or converted or less than 2 years old and yet to be occupied for the first time? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	What is the correct Purchase price / Estimated value £ 250000
If Yes, is this a self-build? Yes <input type="checkbox"/> No <input type="checkbox"/>	Market Value Present Condition £ 250000
Is this a sale of a pre-existing property which has been materially refurbished by the seller in the last two years? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	After completion / repairs / resolution of outstanding issues £
If Yes to any of the above, is the property sufficiently completed for mortgage purposes? Yes <input type="checkbox"/> No <input type="checkbox"/>	Does the reported Market Value differ from the instructed Purchase Price/Estimated Value? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
If an incomplete self-build, please specify construction stage reached.	If Yes, please provide details:
Warranty	Property Type Detached House <input type="checkbox"/> Semi Detached House <input checked="" type="checkbox"/> Terraced House <input type="checkbox"/>
Build Warranty	Flat/Maisonette <input type="checkbox"/> Bungalow <input type="checkbox"/>
Name of Builder	Other <input type="checkbox"/> If other, please provide details:
Name of Development	Flat/Maisonette: Number of Storeys in block <input type="checkbox"/> Which floor(s) <input type="checkbox"/> No. of Units <input type="checkbox"/>
Number of Units in Development	Accommodation Bedrooms 4
Estimated value of incentives £	Private Parking Garage <input checked="" type="checkbox"/> Space <input checked="" type="checkbox"/> None <input type="checkbox"/>
The UK Finance Disclosure Form	Approx. Gross External Floor Area 106 m2
Has a UK Finance Disclosure of Incentives Form been seen and reflected in reported Valuation? Yes <input type="checkbox"/> No <input type="checkbox"/>	Approx. Year Built 1935
Signed By	Estimated plot size acres
Dated	Does the plot size exceed 10 acres or is there any evidence of agricultural, equestrian, commercial development or other non-residential use? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	If Yes, please provide details:
	Is the property of unconventional or non standard construction? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	If Yes, please provide details including system name (if known):
	Services Does the property have MAINS water, electricity and drainage? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
	If No, details:
	Tenure (as stated to or assumed by the valuer)
	Freehold <input checked="" type="checkbox"/> Leasehold <input type="checkbox"/> Commonhold <input type="checkbox"/> Scottish <input type="checkbox"/>
	If Leasehold, term remaining (if not known enter NK and assume 85 years)
	Ground Rent / Service Charge per annum (enter NK if unknown) £
	Insurance Main and significant outbuildings reinstatement costs £ 180000
Buy to Let	
Is this a Buy To Let Mortgage? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Is the property in acceptable condition for letting purposes? Yes <input type="checkbox"/> No <input type="checkbox"/>	
If Yes, what is the Market Rent per month (single six month AST or equivalent)? £	
If No, please describe the works required to put the property into a lettable condition	
What is the Market Rent per month (single six months AST or equivalent) assuming works are completed? £	
Is there a reasonable and sustainable level of demand for rented accommodation of this type and size in this area? Yes <input type="checkbox"/> No <input type="checkbox"/>	
If there is not a reasonable and sustainable demand, please explain	

Case Ref: Address <b>SHEFFIELD</b>
Does the valuer need to see any specialist reports before providing a present condition Market Value? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Structural Engineers / Chartered Building Surveyor Report <input type="checkbox"/> Japanese Knotweed <input type="checkbox"/> Trees <input type="checkbox"/> Mould <input type="checkbox"/> Drains <input type="checkbox"/> Serious Dampness and Timber decay <input type="checkbox"/> Other (Please provide details) <input type="checkbox"/>
Specialist Reports - Further Details. Please explain why the report is necessary, what it should cover and any qualifications to be held by specialist
Significant Works Required which are reflected in the Market Value Figure The condition of the property appears generally consistent with its age and type of construction but works of repair and maintenance are required.
Additional Matters considered essential for the lending decision Is the valuation subject to any non-standard or special assumptions? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Is the valuation subject to the conveyancer making enquiries in respect of statutory consents, rights of way, tenure details, tenancies, occupancy, insurance etc? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Is there any evidence that the property may be subject to an overage clause, sale price restriction, agricultural occupancy restriction, occupier age restriction or other occupancy or resale restriction? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Is there any evidence that a tenant or other third party may have occupation rights or the vendor may intend to remain in occupation? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Is there any evidence of obvious, recent and significant alterations or extensions? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Is there any evidence that the property has been underpinned or subject to other significant structural repairs? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Is there any evidence of outstanding planning permission or obvious potential for redevelopment of the plot? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Does the property appear to be affected by any easements, shared access, flying freeholds or rights of way, light or drainage, etc? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Is the property a Listed Building or is it in a Conservation Area? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Is the property fitted with solar panels or other equipment which may be subject to a separate lease? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Is there any living accommodation in a self-contained annexe? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Is this a transaction between family members or other connected persons? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Does the proposed security include property on a separate site from the main dwelling or does it appear to comprise multiple titles? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Is this a property which is in multiple occupation or lends itself to multiple occupation? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Does the conveyancer need to confirm that the property is covered by guarantees for repair, improvement or treatment works? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Is there any evidence of a previous sale of the property completed within the last 6 months? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____ Is the property likely to be adversely affected by mining, fracking, contamination, flooding, coastal erosion, Radon, proximity to HS2, high voltage electrical equipment or other environmental issue? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If Yes, please provide details: <u>The property is in an area of past coal mining/extraction. Obtain a report from the</u> Are any other matters not already reported which are considered essential to the lending decision? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, please provide details: _____

Case Ref: Address <b>SHEFFIELD</b>	
Declaration I certify that the property described in this report has been inspected by me and that the valuation is a fair indication of the current value for mortgage purposes. I do not have a direct or indirect interest in the property. I understand that a copy of this valuation form will be disclosed to the borrower. I certify that I am a RICS Registered Valuer. Valuer name: _____ Signed: 531640 = 5520 Qualifications   MRICS <input checked="" type="checkbox"/> FRICS <input type="checkbox"/> AssocRICS <input type="checkbox"/> RICS No. _____	<p align="center"><b>An Important Notice to the Applicant is attached. Please read carefully before making any commitments</b></p>
Firm Name <b>Chartered Surveyors</b> Address <b>Kettering</b>	
Tel _____ Fax _____	
Date of Inspection <b>24/04/2018</b> Date of Report <b>24/04/2018</b> Valuer Ref: _____	

\* See Continuation Page \*



## Standard / BTL Mortgage Valuation

### Important Notice to Applicants

Please read carefully

This report is in the format required by NatWest Bank plc ('the Bank'). A copy of the report has been provided to you as a matter of courtesy for information only and should not be disclosed by you to any third party. In the event of such disclosure, no responsibility will be accepted either by the Bank or the valuer to the third party.

The report has been obtained from an independent valuer and has been prepared solely to enable the Bank to consider what advance (if any) may be made on the security of this property.

The report is not a building survey or report on condition and may not mention defects that may be important to you or which may be revealed by a detailed survey. If any repair(s) and their estimated cost(s) are indicated in the report you should satisfy yourself as to the cost(s) of such repair(s) by detailed contractors' estimates before proceeding with the purchase.

The questions on the report form have been answered to the best of the valuer's knowledge based only upon information made available at the time of inspection. The valuer has not made any formal enquiries or undertaken any research. The answers given in the report should be checked by your conveyancer and if incorrect referred back to the valuer as the valuation and/or report may be significantly affected.

The valuation figure is for mortgage purposes only and will not necessarily represent the purchase valuation of the property.

The report is by the valuer to the Bank and has been prepared in accordance with the RICS residential mortgage valuation specification. No warranty is given or implied by the Bank or the valuer that the statements or opinions expressed or implied in the report are accurate or valid, or (in the case of a purchase) that the purchase price is reasonable. The Bank recommends that you obtain your own report to satisfy yourself as to the property's condition and value. Otherwise, you will proceed entirely at your own risk, as neither the Bank nor the valuer accepts any responsibility to you for the content of the report.



# RICS HomeBuyer Report...

Property address

Sheffield  
South Yorkshire

Client's name

Dr

Date of inspection

20th November 2013



# Contents

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- A Introduction to the report
- B About the inspection
- C Overall opinion and summary of the condition ratings
- D About the property
- E Outside the property
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- G Services
- H Grounds (including shared areas for flats)
  - I Issues for your legal advisers
- J Risks
- K Valuation
- L Surveyor's declaration
  - What to do now
  - Description of the RICS HomeBuyer Service
  - Typical house diagram
  - Maintenance tips
  - Leasehold properties advice

RICS is the world's leading qualification when it comes to professional standards in land, property and construction.

In a world where more and more people, governments, banks and commercial organisations demand greater certainty of professional standards and ethics, attaining RICS status is the recognised mark of property professionalism.

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RICS is an independent professional body originally established in the UK by Royal Charter. Since 1868, RICS has been committed to setting and upholding the highest standards of excellence and integrity – providing impartial, authoritative advice on key issues affecting businesses and society.

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## A

## Introduction to the report

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This HomeBuyer Report is produced by an RICS surveyor who has written this report for you to use. If you decide not to act on the advice in this report, you do this at your own risk.

The HomeBuyer Report aims to help you:

- make a reasoned and informed decision on whether to go ahead with buying the property;
- make an informed decision on what is a reasonable price to pay for the property;
- take account of any repairs or replacements the property needs; and
- consider what further advice you should take before committing to purchase the property.

Any extra services we provide that are not covered by the terms and conditions of this report must be covered by a separate contract.

If you want to complain about the service, please refer to the complaints handling procedure in the 'Description of the RICS HomeBuyer Service' at the back of this report.

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# B

## About the inspection

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Surveyor's name	<input type="text"/>	
Surveyor's RICS number	<input type="text"/>	
Company name	<input type="text"/>	
Date of the inspection	<input type="text" value="20th November 2013"/>	Report reference number <input type="text" value="....."/>
Related party disclosure	<input type="text" value="None.."/>	
Full address and postcode of the property	<input type="text" value="Road, Sheffield, South Yorkshire,"/>	



Weather conditions when the inspection took place	<input type="text" value="It was dry following a period of heavy rain."/>
---	---

The status of the property when the inspection took place	<input type="text" value="The property was occupied and fully furnished with fitted floor coverings throughout which restricted our inspection. We have inspected the surface of the floors where possible. We note that the floor surfaces were covered in all of the rooms. We have not raised any floorboards. Our comments are based only on those parts that we have inspected."/>
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Property address	<input type="text" value="Road, Sheffield, South Yorkshire, S11 7DD"/>
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We inspect the inside and outside of the main building and all permanent outbuildings, but we do not force or open up the fabric. We also inspect parts of the electricity, gas/oil, water, heating and drainage services that can be seen, but we do not test them.

To help describe the condition of the home, we give condition ratings to the main parts (the 'elements') of the building, garage and some parts outside. Some elements can be made up of several different parts.

In the element boxes in parts E, F, G and H, we describe the part that has the worst condition rating first and then briefly outline the condition of the other parts. The condition ratings are described as follows.

<b>3</b>	Defects that are serious and/or need to be repaired, replaced or investigated urgently.
<b>2</b>	Defects that need repairing or replacing but are not considered to be either serious or urgent. The property must be maintained in the normal way.
<b>1</b>	No repair is currently needed. The property must be maintained in the normal way.
<b>NI</b>	Not inspected (see 'Important note' below).

The report covers matters that, in the surveyor's opinion, need to be dealt with or may affect the value of the property.

**Important note:** We carry out only a visual inspection. This means that we do not take up carpets, floor coverings or floorboards, move furniture or remove the contents of cupboards. Also, we do not remove secured panels or undo electrical fittings.

We inspect roofs, chimneys and other surfaces on the outside of the building from ground level and, if necessary, from neighbouring public property and with the help of binoculars.

We inspect the roof structure from inside the roof space if there is safe access (although we do not move or lift insulation material, stored goods or other contents). We examine floor surfaces and under-floor spaces so far as there is safe access to these (although we do not move or lift furniture, floor coverings or other contents). We are not able to assess the condition of the inside of any chimney, boiler or other flues.

We note in our report if we are not able to check any parts of the property that the inspection would normally cover. If we are concerned about these parts, the report will tell you about any further investigations that are needed.

We do not report on the cost of any work to put right defects or make recommendations on how repairs should be carried out. Some maintenance and repairs we suggest may be expensive.

 Please read the 'Description of the RICS HomeBuyer Service' (at the back of this report) for details of what is, and is not, inspected.

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# C

## Overall opinion and summary of the condition ratings

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This section provides our overall opinion of the property, and summarises the condition ratings of the different elements of the property.

If an element is made up of a number of different parts (for example, a pitched roof to the main building and a flat roof to an extension), only the part in the worst condition is shown here.

To make sure you get a balanced impression of the property, we strongly recommend that you read all sections of the report, in particular the 'What to do now' section.

### Our overall opinion of the property

The property is considered to be a reasonable purchase based on those matters covered within this type of report, provided you are prepared to accept the cost and inconvenience of dealing with the various repair / improvement works reported. These deficiencies are quite common in properties of this type and age. Provided the necessary works are carried out to a satisfactory standard, we can see no reason why there should be any special difficulty on resale in normal market conditions.

The property does require various repairs and improvements as detailed within the main body of this report and these are typical for the age and construction type. These should be undertaken as part of a planned maintenance programme otherwise deterioration may occur to the building fabric which may result in inflated repair costs.

The use of scaffolding to access repairs to the roof, chimney and walls may inflate repair costs.

3

Section of the report	Element number	Element name
E: Outside the property	E4	Main walls
F: Inside the property	F3	Walls and partitions
G: Services	G1 G2 G4	Electricity Gas/oil Heating
H: Grounds (part)	H2	Other

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## C

## Overall opinion and summary of the condition ratings

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Section of the report	Element number	Element name
E: Outside the property	E1	Chimney stacks
	E2	Roof coverings
	E3	Rainwater pipes and gutters
	E5	Windows
	E6	Outside doors
F: Inside the property	F5	Fireplaces, chimney breasts and flues
	F7	Woodwork
	F9	Other
G: Services	—	—
H: Grounds (part)	—	—

1

Section of the report	Element number	Element name
E: Outside the property	E8	Other joinery and finishes
F: Inside the property	F2	Ceilings
	F4	Floors
	F6	Built-in fittings
	F8	Bathroom fittings
G: Services	G3	Water
	G5	Water heating
	G6	Drainage
H: Grounds (part)	—	—

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# D

## About the property

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Type of property

Approximate year the property was built

Approximate year the property was extended

Approximate year the property was converted

Information relevant to flats and maisonettes

### Accommodation

Floor	Living rooms	Bed-rooms	Bath or Shower	Separate toilet	Kitchen	Utility room	Conser-vatory	Other	Name of other
Lower ground								1	cellar
Ground	2				1				
First		2	1						
Second		1							
Third									
Other									
Roof space									

### Construction

The property is traditionally constructed as follows:  
 Roof - pitched in design with composite slate covering  
 Walls - cavity and solid brick  
 Floors - solid concrete and suspended timber  
 Windows - UPVC double glazed

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# D

## About the property (continued)

### Energy

We have not prepared the Energy Performance Certificate (EPC). If we have seen the EPC, then we will present the ratings here. We have not checked these ratings and so cannot comment on their accuracy.

We are advised that the property's current energy performance, as recorded in the EPC, is:

Energy-efficiency rating

Not available

Environmental impact rating

Not available

### Mains services

The marked boxes show that the mains services are present.

Gas     Electricity     Water     Drainage

### Central heating

Gas     Electric     Solid fuel     Oil     None

### Other services or energy sources (including feed-in tariffs)

### Grounds

The property occupies a traditional plot for the locality with small front forecourt and rear block paved yard.

### Location

The property is located within an established and popular residential location, a mix of both owner occupied and student let accommodation.

Murray Road is made up and assumed adopted by the Local Highways Authority.

### Facilities

The local area has a good range of local amenities.

Difficulties in parking a vehicle outside the property will be experienced due to the popularity of the locality.

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# D

## About the property (continued)

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### Local environment

Full environmental searches should be obtained before exchange of contracts.

The property is located in a former coal mining area and appropriate coal mining searches should be undertaken.

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## Limitations to inspection

1 2 3 NI

E1  
Chimney stacks

The property has two traditionally constructed brick chimney stacks shared with the adjoining property. 2

There were no signs of any movement or distortion to the chimney stack with brick work being in acceptable condition and pointing also acceptable.

The cement haunchings to the top of the stack are slightly weathered and you should budget for some re pointing to these areas.

Lead flashings are present to the bases of both stacks and from ground level appear in serviceable condition although the rear stack flashings appear damaged and there are signs of internal dampness in the rear part of the attic which may be attributable to defective flashings. The flashings should be overhauled to ensure complete water tightness.

Flashings seal the point at which the chimney stack goes through the roof and defective flashings are a notorious source of damp penetration, and leaking can cause rot to occur to roof timbers. It is recommended that the flashings are closely monitored and inspected on a regular basis and any remedial and repair work carried out when required.

The disused flues to all chimney stacks should be ventilated to prevent the build up of condensation and this involves installing air bricks to the internal chimney breasts and the corresponding flues at stack level should be finished with ventilation cowls.

The flue serving the solid fuel appliance in the dining room should be checked and swept prior to further use by a HETAS heating engineer. In view of the age of the property the flue may need to be lined to comply to regulations and this can be expensive.

The rear off shot chimney stack has been removed.

E2  
Roof coverings

The main roof is pitched in design with replacement composite slate covering. 2

There were no signs of any significant movement or distortion to the roof elevations although slight undulation was noted which is quite acceptable.

The ridge tiles are in acceptable condition but some re bedding and re pointing to ridge tiles is required.

The composite slate covering was in serviceable condition although there are a number of damaged and loose slates to the roof elevations and the roof should be overhauled to ensure damaged and loose slates are secure.

Roof void ventilation is inadequate. To prevent the build up of condensation the roof void should be ventilated by installing roof plane, ridge line and eaves vents as necessary.

There is limited overhang of the off shot roof to the rear wall elevation and

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# E

## Outside the property

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E2  
Roof coverings

improvements should be made.

The front bay has a mineral felt covered flat roof which is in ageing condition and will have a limited life. Although there are no obvious signs of leakage or defect to the flat roof, this type of roof is more problematic than traditional pitched types and are considered inferior. This type of roof has an unpredictable life span will require periodic renewal and can fail without warning at which time you will need to repair/recover, which may involve renewal of the timber decking.

E3  
Rainwater pipes  
and gutters

The property has timber gutters and plastic down pipes, some of which are over painted. 2

The timber gutters do show signs of some early deterioration, particularly to stop ends and the gutters should be overhauled to ensure complete water tightness.

The down pipes are in ageing condition and may have a limited life and you should budget for replacement.

The off shot gutter down pipe has been altered to accommodate the central heating boiler flue. This old outlet is leaking.

There are some hoppers, one of which is shared with the bathroom waste. During heavy rain fall and simultaneous discharge of waste water this may result in overflowing.

E4  
Main walls

The external walls are brick faced, a mixture of solid brick and assumed to be of cavity construction although no part of the fabric was removed and no comment can therefore be made regarding the condition of the cavity or the cavity wall ties. 3

Whilst no evidence of cavity wall tie corrosion was noted to the property this type of mortar can lead to premature failure of the cavity wall ties. Therefore before exchange of contracts a cavity wall tie specialist should check the condition of the cavity wall ties and provide you with further recommendations and costs for any remedial work.

The brick work to external walls was found to be in acceptable condition with no signs of any significant movement or distortion.

The pointing to external walls is in places weathered particularly to the front elevation and you should anticipate and budget for some re pointing to wall elevations as well as re pointing to the front elevation.

There is an old timber lintel embedded in the rear off shot wall and the condition of this should be monitored in the future.

There were no signs of any significant differential settlement affecting the rear off shot although slight settlement was noted which is not significant. Similarly slight settlement was noted to the front bay window but this is not considered significant nor detrimental.

The kitchen window sill has been repaired with a cement render and this may only form a temporary repair and renewal may be required.

We are not aware and there is no evidence of any cavity wall insulation and have assumed for the purpose of this report that none exists. The installation of cavity wall insulation would benefit overall energy efficiency and should you wish to carry out this work you are advised to instruct a specialist in this field so as to prevent damage to cavity wall ties. The thickness of the cavity however may not be suitable for installation of cavity wall insulation and specialist advice should be obtained.

The original damp proof course is obscured by pointing but there is evidence of a

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# E

## Outside the property

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<p>E4 Main walls</p>	<p>chemical injected damp proof course visible to external walls. We recommend that the guarantee of the installer is obtained before commitment to purchase. If no such guarantee is forthcoming or the guarantee supplied is too limited or worthless then any future repairs to the damp proof course will have to be repaired at your own cost.</p> <p>External ground levels are too high in relation to the damp proof course. The ground level should be reduced to 150mm below damp proof course level to prevent excessive wetting of the brickwork.</p> <p>The right hand side front brick boundary wall is slightly breaching the damp proof course but an injected damp proof course has been provided around.</p> <p>Sub floor ventilation is provided by air bricks. The number and distribution is considered acceptable although it is recommended that old style air bricks are replaced with new high flow air vents. It is also recommended that one air brick is provided to the rear elevation beneath the dining room window.</p>
<p>E5 Windows</p>	<p>The windows are replacement UPVC frames incorporating double glazed sealed units. <span style="float: right;">2</span></p> <p>We cannot confirm when these were installed.</p> <p>There is evidence of internal condensation to some double-glazed sealed units and these will need to be renewed. Obtain detailed cost and estimates before exchange of contracts for this work but also anticipate that other presently sound double-glazed sealed units will need to be replaced in the future.</p> <p>The two roof velux windows are in ageing condition. These will have a limited life and you should budget for replacement. There is evidence of internal condensation to some double-glazed sealed units and these will need to be renewed. Obtain detailed cost and estimates before exchange of contracts for this work but also anticipate that other presently sound double-glazed sealed units will need to be replaced in the future.</p>
<p>E6 Outside doors (including patio doors)</p>	<p>The side passage door is formed in hard wood within a soft wood frame and as it is protected from the elements with the passageway was in acceptable condition requiring routine re-decoration. <span style="float: right;">2</span></p> <p>The rear elevation door is formed in hard wood within a soft wood frame and is in ageing condition and the door and frame can be expected to have a limited life and you should budget for replacement.</p>
<p>E7 Conservatory and porches</p>	<p>None. <span style="float: right;">NI</span></p>
<p>E8 Other joinery and finishes</p>	<p>All external joinery should be decorated on a regular basis. <span style="float: right;">1</span></p> <p>Special precautions should be taken during surface preparation as pre 1960's paint surfaces over wood and metal as they may contain harmful lead.</p>
<p>E9 Other</p>	<p>None. <span style="float: right;">NI</span></p>

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## Limitations to inspection

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1 2 3 NI

F1  
Roof structure

There were no access hatches to the roof void areas and therefore we cannot fully comment upon their condition.

NI

F2  
Ceilings

The ceilings are a mixture of original lath and plaster and replacement plaster board with plaster finish. There are signs of some cracking to ceilings which is quite acceptable for this age of property.

1

The ceilings are of lath and plaster construction and there is evidence of cracking and unevenness to ceilings. The strength of this type of ceiling depends on how well the plaster keys into the laths and when the plaster starts to pull loose it often becomes wide spread and the repair of a small crack can therefore soon become a large repair. Vibration, noise and installation of central heating can cause premature failing of these ceilings. Anticipate and budget for renewal to the ceilings upon future decorations.

F3  
Walls and partitions

Internal walls are a mixture of masonry and timber stud partitioning with plaster finish.

3

The original wall between the kitchen and dining room has been removed. It is assumed that building regulations approvals were granted and complied with and this should be confirmed before exchange of contracts.

Due to the age of the property plaster will be aging in areas and will be losing its adherence to the wall surfaces beneath. When you come to redecorate you may have to re plaster some wall areas.

Moisture meter tests using a protometer were made throughout the ground floor walls above skirting board level where there were no furnishings or back units and localised high moisture readings were obtained to ground floor walls.

Despite evidence of past damp proofing works moisture test readings suggest failure of either the damp proof course or the re-plastering scheme has been carried out to an inadequate specification. If a guarantee exists check that the installers will remedy the problem under the guarantee before exchange of contracts. If no guarantee is available then you will need a further report before exchange of contracts from a competent damp proofing specialist providing costs and specification for the installation of an effective damp proof course and an appropriate re-plastering scheme.

There was evidence of high moisture readings to the rear and right hand wall of the rear kitchen directly beneath the old external chimney stack. Repairs should be undertaken on a trial and error basis to the roof and walls in this location to eradicate the dampness.

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<p>F4 Floors</p>	<p>The ground floor is a mixture of solid concrete to the rear off shot and suspended timber to the remaining sections. <span style="float: right;">1</span></p> <p>The floors were firm under walking load with no signs of any significant defect.</p> <p>The first floor is formed in suspended timber and was firm under walking load with no signs of significant defect.</p> <p>The attic floor is formed in suspended timber. The floor is situated on under sized floor joists which is quite typical for the age of property. Some undulation was noted around the central spine wall and this is quite typical.</p> <p>Some springiness was noted to the front section and this is a result of the under sized nature of the floor joists. If excessive amounts of heavy furniture are installed then strengthening of the floor may need to be carried out.</p> <p>While no evidence of wood boring infestation was found it is not practical to examine each and every timber element and many areas were inaccessible. Wood boring insect infestation and timber problems are not uncommon in properties of this age and type and as part of routine maintenance some timber treatment works should be anticipated and budgeted for.</p> <p>The underside of the timber ground floor must be well ventilated to prevent the timbers becoming damp and vulnerable to fungal decay. Ventilation is provided by air bricks and these must be kept clear at all times. We have not been able to check below the floor surfaces and cannot state there were no obstructions that might cause future problems.</p>
<p>F5 Fireplaces, chimney breasts and flues</p>	<p>Within the dining room is a solid fuel stove. It should be confirmed that appropriate regulations were obtained for its installation. The flue should be checked and swept prior to further use by a HETAS heating engineer. The property is located in a smokeless zone and only smokeless fuel should be used. <span style="float: right;">2</span></p> <p>There are open original fire places with fire surrounds within the two bedrooms and sitting room. These are presently disused. If you wish to use any of these flues then they will first need to be checked by either a HETAS heating engineer or a Gas Safe Registered Technician.</p> <p>There are signs of high moisture readings to the attic rear chimney breast. This may be due to a lack of ventilation within the flue, defective soakers, flashings or pointing. Eradication will be on a trial and error basis and this should be budgeted for.</p>
<p>F6 Built-in fittings (built-in kitchen and other fittings, not including appliances)</p>	<p>The kitchen provides a range of base units and sink and these are in average condition. <span style="float: right;">1</span></p> <p>A wooden work top is present and this will require regular treatment.</p>
<p>F7 Woodwork (for example, staircase and joinery)</p>	<p>Internal skirting boards and architraves are formed in soft wood and are in serviceable condition subject to normal wear and tear. <span style="float: right;">2</span></p> <p>Internal doors are of a panel design, a mixture of styles and in serviceable condition. As the property is over three floors modern properties would require self closing fire doors and it is recommended that at least one self closing fire door is provided to the bottom of the attic stair case.</p> <p>Access to the first floor is via a timber stair case which is firm under walking load. The hand rail is slightly loose and does require securing.</p> <p>Access to the second floor is via a timber stair case which is firm under walking</p>
<p>Property address</p>	<p>Sheffield, South Yorkshire,</p>



# F

## Inside the property

15

F7  
Woodwork (for  
example, staircase  
and joinery)

load. A hand rail should be installed for safety reasons.  
The balustrading to the top of the stair case is firm and acceptable.

F8  
Bathroom fittings

The bathroom provides a bath, wash hand basin, wc - this is a modern suite and in serviceable condition although the wc cistern is loose and does require re securing. **1**

It is recommended that a mechanical extractor is installed to extract moisture laden to the outside.

F9  
Other

There is a cellar beneath the front sitting room. **2**

This was under drawn and it is recommended that the under drawing is removed to assist in ventilation of the timbers.

There is evidence of slight wood worm infestation to the floor joists at the bottom of the stair case and it is recommended that a timber treatment specialist does check the condition of all timbers and provides costs for any remedial work.

The timber lintel over the coal chute is defective and requires replacement.

The cellar area was relatively dry with no evidence of any standing water but as the cellar is below ground level there is always an inherent risk of moisture ingress.

There was evidence of slight settlement to the front bay window with cracking noted and this is quite typical and is not considered detrimental.

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Services are generally hidden within the construction of the property. This means that we can only inspect the visible parts of the available services, and we do not carry out specialist tests. The visual inspection cannot assess the services to make sure they work efficiently and safely, and meet modern standards.

### Limitations to inspection

1 2 3 NI

G1  
Electricity

*Safety warning: The Electrical Safety Council recommends that you should get a registered electrician to check the property and its electrical fittings at least every ten years, or on change of occupancy. All electrical installation work undertaken after 1 January 2005 should have appropriate certification. For more advice contact the Electrical Safety Council.*

Mains electricity is connected and the meter and consumer unit located in the cellar.

3

There was evidence of modern fittings and a modern consumer unit, however there was no evidence when the installation was last tested. This evidence suggests the electrical installation does not comply with present day IEE regulations. A qualified NICEIC approved electrical contractor should before exchange of contracts provide you with costs and estimates for upgrading the electric wiring to IEE regulations and your socket requirements. Building regulation requirements should be complied with.

G2  
Gas/oil

*Safety warning: All gas and oil appliances and equipment should regularly be inspected, tested, maintained and serviced by a registered 'competent person' and in line with the manufacturer's instructions. This is important to make sure that the equipment is working correctly, to limit the risk of fire and carbon monoxide poisoning and to prevent carbon dioxide and other greenhouse gases from leaking into the air. For more advice contact the Gas Safe Register for gas installations, and OFTEC for oil installations.*

Mains gas is connected and the meter situated in the cellar.

3

For safety reasons all gas appliances, associate pipe work and flues should be checked and serviced before exchange of contracts by a Gas Safe Register plumber.

For safety reasons you should install carbon monoxide detectors within the property.

G3  
Water

Mains water is connected to the property and the external stop tap located within the front path and the internal stop tap located within the cellar.

1

The incoming mains supply pipe is formed in lead which is a health concern. You should anticipate and budget for early renewal of the mains pipe up to the local authority stop tap.

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# G Services

G4 Heating	<p>Central heating is provided by a wall mounted combination boiler located in the kitchen and this serves a series of panel radiators situated throughout the property.</p> <p>The timer is located on the central heating boiler.</p> <p>There is no central room thermostat and one should be installed to upgrade the efficiency of the installation.</p> <p>The central heating system is of a relatively modern design with modern radiators with thermostatic radiator valves in situ. These can be temperamental.</p> <p>Whilst we have no reason to doubt the operational efficiency of the central heating system it is recommended that it is inspected by a Gas Safe Registered Technician before exchange of contracts.</p>	3
G5 Water heating	<p>Hot water is supplied on demand from the combination boiler and there were no water storage tanks or cylinders.</p> <p>Combination boilers do experience a drop off in water flow rates when hot water taps are opened simultaneously throughout the house and repairs and parts for combination boilers can be expensive.</p>	1
G6 Drainage	<p>Mains drainage is connected and in view of the age of the property this will be a combined foul and surface water drainage system.</p> <p>The man hole cover within the passage was lifted and the drains were found to be clear at this point.</p> <p>The kitchen and bathroom waste pipes are formed in plastic and in serviceable condition.</p> <p>There is a plastic soil stack to the front elevation and this is adequately fixed to the wall.</p>	1
G7 Common services		NI

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# H

## Grounds (including shared areas for flats)<sup>18</sup>

### Limitations to inspection

1 2 3 NI

H1  
Garage

None.

NI

H2  
Other

The right hand side rear brick boundary wall is bowed and is unstable and it is recommended that this is re built and the repairing liability for this wall should be confirmed by solicitors before exchange of contracts.

3

The rear boundary wall is also bowed and we cannot offer any assurances with regard to the structural stability of this wall. It is recommended that a Structural Engineer does provide a report on this wall before exchange of contracts and the repairing liability for this wall should be confirmed by your solicitor before exchange of contracts.

H3  
General

The property occupies a traditional plot for the locality with small front forecourt and rear block paved yard.

The block paved yard area was in acceptable condition.

The right hand side high section of the right boundary wall does need to be finished with some form of copings to stop water from penetrating the wall and potentially affecting the interior of the property.

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# I

## Issues for your legal advisers

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19

We do not act as 'the legal adviser' and will not comment on any legal documents. However, if during the inspection we identify issues that your legal advisers may need to investigate further, we may refer to these in the report (for example, check whether there is a warranty covering replacement windows).

11 Regulation	None that we are aware of.
12 Guarantees	Your solicitor should before exchange of contracts confirm guarantees for: 1. Damp proof course.
13 Other matters	Your solicitor should before exchange of contracts confirm: 1. Normal legal enquiries including mining, environmental and local searches. 2. The Property is in a coal mining area. We are not aware of mining claims, however, a written report on mine workings should be obtained from the Coal Authority. The valuation assumes this does not reveal the property to be at risk of movement from mining. 3. The extent, ownership and repairing liabilities of boundaries.

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# J

## Risks

20

This section summarises defects and issues that present a risk to the building or grounds, or a safety risk to people. These may have been reported and condition rated against more than one part of the property or may be of a more general nature, having existed for some time and which cannot be reasonably changed.

J1 Risks to the building	1. Localised damp to ground floor walls.
J2 Risks to the grounds	Bowed and potentially unstable boundary walls.
J3 Risks to people	All services and appliances should be tested before legal exchange by specialists. Special precautions should be taken during surface preparation as pre 1960's paint surfaces over wood and metal as they may contain harmful lead. Absence of internal fire doors.
J4 Other	None.

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In my opinion the Market Value on  as inspected was:

£:

Thousand Pounds

(amount in words)

Tenure

Area of property (sq m)\*

\* Approximate gross external area of the building or flat.

In my opinion the current reinstatement cost of the property (see note below) is:

(amount in words)

In arriving at my valuation, I made the following assumptions.

With regard to the materials, construction, services, fixtures and fittings, and so on I have assumed that:

- an inspection of those parts that I could not inspect would not identify significant defects or a cause to alter the valuation;
- no dangerous or damaging materials or building techniques have been used in the property;
- there is no contamination in or from the ground, and the ground has not been used as landfill;
- the property is connected to, and has the right to use, the mains services mentioned in the report; and
- the valuation does not take account of any furnishings, removable fittings or sales incentives.

With regard to legal matters I have assumed that:

- the property is sold with 'vacant possession' (your legal advisers can give you more information on this term);
- the condition of the property, or the purpose the property is or will be used for, does not break any laws;
- no particularly troublesome or unusual restrictions apply to the property, that the property is not affected by problems which would be revealed by the usual legal inquiries and that all necessary planning permissions and Building Regulations consents (including consents for alterations) have been obtained and complied with; and
- the property has the right to use the mains services on normal terms, and that the sewers, mains services and roads giving access to the property have been 'adopted' (that is, they are under local-authority, not private, control).

#### Any additional assumptions relating to the valuation

Your legal advisers, and other people who carry out property conveyancing, should be familiar with these assumptions and are responsible for checking those concerning legal matters.

My opinion of the Market Value shown here could be affected by the outcome of the enquiries by your legal advisers (section 1) and/or any further investigations and quotations for repairs or replacements. The valuation assumes that your legal advisers will receive satisfactory replies to their enquiries about any assumptions in the report.

#### Other considerations affecting value

**Note:** You can find information about the assumptions I have made in calculating this reinstatement cost in the 'Description of the RICS HomeBuyer Service' provided. The reinstatement cost is the cost of rebuilding an average home of the type and style inspected to its existing standard using modern materials and techniques, and by acting in line with current Building Regulations and other legal requirements. This will help you decide on the amount of buildings insurance cover you will need for the property.

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"I confirm that I have inspected the property and prepared this report, and the Market Value given in the report."

Signature	Security Print Code		
Surveyor's RICS number		Qualifications	BSc MRICS
For and on behalf of			
Company			
Address			
Town	Doncaster	County	S Yorks
Postcode		Phone number	
Website		Fax number	
Email			
Property address	, Sheffield, South Yorkshire		
Client's name	Dr	Date this report was produced	26 November 2013

### RICS Disclaimers

1. This report has been prepared by a surveyor ('the Employee') on behalf of a firm or company of surveyors ('the Employer'). The statements and opinions expressed in this report are expressed on behalf of the Employer, who accepts full responsibility for these.

Without prejudice and separately to the above, the Employee will have no personal liability in respect of any statements and opinions contained in this report, which shall at all times remain the sole responsibility of the Employer to the exclusion of the Employee.

In the case of sole practitioners, the surveyor may sign the report in his or her own name unless the surveyor operates as a sole trader limited liability company.

To the extent that any part of this notification is a restriction of liability within the meaning of the *Unfair Contract Terms Act 1977* it does not apply to death or personal injury resulting from negligence.

2. This document is issued in blank form by the Royal Institution of Chartered Surveyors (RICS) and is available only to parties who have signed a licence agreement with RICS.

RICS gives no representations or warranties, express or implied, and no responsibility or liability is accepted for the accuracy or completeness of the information inserted in the document or any other written or oral information given to any interested party or its advisers. Any such liability is expressly disclaimed.

 Please read the 'Description of the RICS HomeBuyer Service' (at the back of this report) for details of what is, and is not, inspected.

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## What to do now

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### Getting quotations

The cost of 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 get reports and quotations for all the repairs and further investigations the surveyor may have identified. 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;
- describe in writing exactly what you will want them to do; and
- 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.

### Further investigations

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.

### 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.

### When to do the work

The condition ratings help describe the urgency of the repair and replacement work. The following summary may help you decide when to do the work.

- Condition rating 2 – repairs should be done soon. Exactly when will depend on the type of problem, but it usually does not have to be done right away. Many repairs could wait weeks or months, giving you time to organise suitable reports and quotations.
- Condition rating 3 – repairs should be done as soon as possible. The speed of your response will depend on the nature of the problem. For example, repairs to a badly leaking roof or a dangerous gas boiler need to be carried out within a matter of hours, while other less important critical repairs could wait for a few days.

### Warning

Although repairs of elements with a condition rating 2 are not considered urgent, if they are not addressed they may develop into defects needing more serious repairs. Flat roofs and gutters are typical examples. These can quickly get worse without warning and result in serious leaks.

As a result, you should regularly check elements with a condition rating 2 to make sure they are not getting worse.

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# Description of the RICS HomeBuyer Service

## The service

The RICS HomeBuyer Service includes:

- an inspection of the property (see 'The inspection');
- a report based on the inspection (see 'The report') and
- a valuation, which is part of the report (see 'The valuation').

The surveyor who provides the RICS HomeBuyer Service aims to give you professional advice to help you to:

- make an informed decision on whether to go ahead with buying the property;
- make an informed decision on what is a reasonable price to pay for the property;
- take account of any repairs or replacements the property needs; and
- consider what further advice you should take before committing to purchase the property.

## The inspection

The surveyor inspects the inside and outside of the main building and all permanent outbuildings, but does not force or open up the fabric. This means that the surveyor does not take up carpets, floor coverings or floorboards, move furniture, remove the contents of cupboards, roof spaces, etc., remove secured panels and/or hatches or undo electrical fittings. If necessary, the surveyor carries out parts of the inspection when standing at ground level from public property next door where accessible.

The surveyor may use equipment such as a damp-meter, binoculars and torch, and may use a ladder for flat roofs and for hatches no more than 3 metres above level ground (outside) or floor surfaces (inside) if it is safe to do so.

## Services to the property

Services are generally hidden within the construction of the property. This means that only the visible parts of the available services can be inspected, and the surveyor does not carry out specialist tests. The visual inspection cannot assess the efficiency or safety of electrical, gas or other energy sources; plumbing, heating or drainage installations (or whether they meet current regulations); or the inside condition of any chimney, boiler or other flue.

## Outside the property

The surveyor inspects the condition of boundary walls, fences, permanent outbuildings and areas in common (shared) use. To inspect these areas, the surveyor walks around the grounds and any neighbouring public property where access can be obtained.

Buildings with swimming pools and sports facilities are also treated as permanent outbuildings, but the surveyor does not report on the leisure facilities, such as the pool itself and its equipment, landscaping and other facilities (for example, tennis courts and temporary outbuildings).

## Flats

When inspecting flats, the surveyor assesses the general condition of outside surfaces of the building, as well as its access areas (for example, shared hallways and staircases). The surveyor inspects roof spaces only if they are accessible from within the property. The surveyor does not inspect drains, lifts, fire alarms and security systems.

## Dangerous materials, contamination and environmental issues

The surveyor does not make any enquiries about contamination or other environmental dangers. However, if the surveyor suspects a problem, he or she should recommend a further investigation.

The surveyor may assume that no harmful or dangerous materials have been used in the construction, and does not have a duty to justify making this assumption. However, if the inspection shows that these materials have been used, the surveyor must report this and ask for further instructions.

The surveyor does not carry out an asbestos inspection and does not act as an asbestos inspector when inspecting properties that may fall within the *Control of Asbestos Regulations 2006*. With flats, the surveyor assumes that there is a 'dutyholder' (as defined in the regulations), and that in place are an asbestos register and an effective management plan which does not present a significant risk to health or need any immediate payment. The surveyor does not consult the dutyholder.

## The report

The surveyor produces a report of the inspection for you to use, but cannot accept any liability if it is used by anyone else. If you decide not to act on the advice in the report, you do this at your own risk. The report focuses on matters that, in the surveyor's opinion, may affect the value of the property if they are not addressed.

The report is in a standard format and includes the following sections.

- A Introduction to the report
- B About the inspection
- C Overall opinion and summary of the condition ratings
- D About the property
- E Outside the property
- F Inside the property
- G Services
- H Grounds (including shared areas for flats)
- I Issues for your legal advisers
- J Risks
- K Valuation
- L Surveyor's declaration
  - What to do now
  - Description of the RICS HomeBuyer Service
  - Typical house diagram

## Condition ratings

The surveyor gives condition ratings to the main parts (the 'elements') of the main building, garage and some outside elements. The condition ratings are described as follows.

**Condition rating 3** – defects that are serious and/or need to be repaired, replaced or investigated urgently.

**Condition rating 2** – defects that need repairing or replacing but are not considered to be either serious or urgent. The property must be maintained in the normal way.

**Condition rating 1** – no repair is currently needed. The property must be maintained in the normal way.

**NI** – not inspected.

The surveyor notes in the report if it was not possible to check any parts of the property that the inspection would normally cover. If the surveyor is concerned about these parts, the report tells you about any further investigations that are needed.

The surveyor does not report on the cost of any work to put right defects or make recommendations on how these repairs should be carried out. However, there is general advice in the 'What to do now' section at the end of the report.

## Energy

The surveyor has not prepared the Energy Performance Certificate (EPC) as part of the RICS HomeBuyer Service for the property. If the surveyor has seen the current EPC, he or she will present the energy-efficiency and environmental impact ratings in this report. The surveyor does not check the ratings and cannot comment on their accuracy.

## Issues for legal advisers

The surveyor does not act as 'the legal adviser' and does not comment on any legal documents. If, during the inspection, the surveyor identifies issues that your legal advisers may need to investigate further, the surveyor may refer to these in the report (for example, check whether there is a warranty covering replacement windows).

Continued...



## Description (continued)

### Risks

This section summarises defects and issues that present a risk to the building or grounds, or a safety risk to people. These may have been reported and condition rated against more than one part of the property or may be of a more general nature, having existed for some time and which cannot reasonably be changed.

If the property is leasehold, the surveyor gives you general advice and details of questions you should ask your legal advisers.

### The valuation

The surveyor gives an opinion on both the Market Value of the property and the reinstatement cost at the time of the inspection (see the 'Reinstatement cost' section).

### Market Value

'Market Value' is the estimated amount for which a property should exchange on the date of the valuation between a willing buyer and a willing seller, in an arm's length transaction after the property was properly marketed wherein the parties had each acted knowledgeably, prudently and without compulsion.

When deciding on the Market Value, the surveyor also makes the following assumptions.

### The materials, construction, services, fixtures and fittings, and so on

The surveyor assumes that:

- an inspection of those parts that have not yet been inspected would not identify significant defects or cause the surveyor to alter the valuation;
- no dangerous or damaging materials or building techniques have been used in the property;
- there is no contamination in or from the ground, and the ground has not been used as landfill;
- the property is connected to, and has the right to use, the mains services mentioned in the report; and
- the valuation does not take account of any furnishings, removable fittings and sales incentives of any description.

### Legal matters

The surveyor assumes that:

- the property is sold with 'vacant possession' (your legal advisers can give you more information on this term);
- the condition of the property, or the purpose that the property is or will be used for, does not break any laws;
- no particularly troublesome or unusual restrictions apply to the property, that the property is not affected by problems which would be revealed by the usual legal enquiries and that all necessary planning and Building Regulations permissions (including permission to make alterations) have been obtained and any works undertaken comply with such permissions; and
- the property has the right to use the mains services on normal terms, and that the sewers, mains services and roads giving access to the property have been 'adopted' (that is, they are under local-authority, not private, control).

The surveyor reports any more assumptions that have been made or found not to apply.

If the property is leasehold, the general advice referred to earlier explains what other assumptions the surveyor has made.

### Reinstatement cost

Reinstatement cost is the cost of rebuilding an average home of the type and style inspected to its existing standard using modern materials and techniques and in line with current Building Regulations and other legal requirements.

This includes the cost of rebuilding any garage, boundary or retaining walls and permanent outbuildings, and clearing the site. It also includes professional fees, but does not include VAT (except on fees).

The reinstatement cost helps you decide on the amount of buildings insurance cover you will need for the property.

### Standard terms of engagement

1 **The service** – the surveyor provides the standard RICS HomeBuyer Service ('the service') described in the 'Description of the RICS HomeBuyer Service', unless you and the surveyor agree in writing before the inspection that the surveyor will provide extra services. Any extra service will require separate terms of engagement to be entered into with the surveyor. Examples of extra services include:

- costing of repairs;
- schedules of works;
- supervision of works;
- re-inspection;
- detailed specific issue reports; and
- market valuation (after repairs).

2 **The surveyor** – the service is to be provided by an AssocRICS, MRICS or FRICS member of the Royal Institution of Chartered Surveyors, who has the skills, knowledge and experience to survey, value and report on the property.

3 **Before the inspection** – you tell the surveyor if there is already an agreed or proposed price for the property, and if you have any particular concerns (such as plans for extension) about the property.

4 **Terms of payment** – you agree to pay the surveyor's fee and any other charges agreed in writing.

5 **Cancelling this contract** – you are entitled to cancel this contract by giving notice to the surveyor's office at any time before the day of the inspection. The surveyor does not provide the service (and reports this to you as soon as possible) if, after arriving at the property, the surveyor decides that:

- (a) he or she lacks enough specialist knowledge of the method of construction used to build the property; or
- (b) it would be in your best interests to have a building survey and a valuation, rather than the RICS HomeBuyer Service.

If you cancel this contract, the surveyor will refund any money you have paid for the service, except for any reasonable expenses. If the surveyor cancels this contract, he or she will explain the reason to you.

6 **Liability** – the report is provided for your use, and the surveyor cannot accept responsibility if it is used, or relied upon, by anyone else.

### Complaints handling procedure

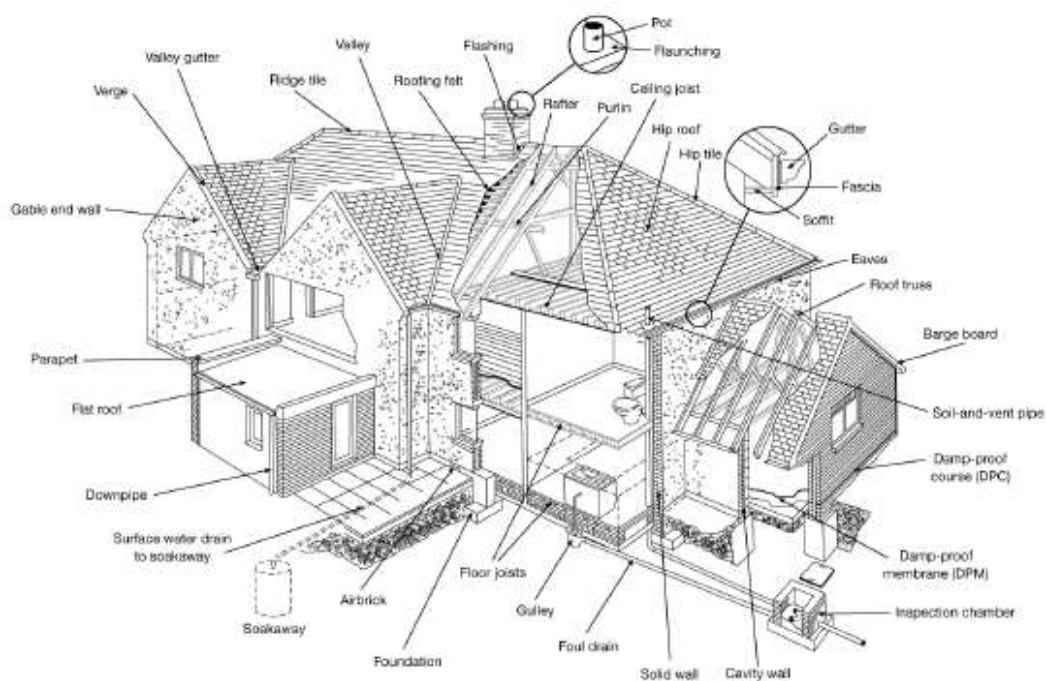
The surveyor will have a complaints handling procedure and will give you a copy if you ask.

**Note:** These terms form part of the contract between you and the surveyor.

This report is for use in England, Wales, Northern Ireland, Channel Islands and Isle of Man.

## Typical house diagram

This diagram illustrates where you may find some of the building elements referred to in the report.



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## Maintenance tips

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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 an 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. 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 down pipes. Look for broken glazing and for any leaks when it's 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.
-

## Maintenance tips

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### 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 breasts 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 is 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. Make sure all hard surfaces are stable and level, and not slippery or a trip hazard.
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## Leasehold properties advice

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Before you buy a leasehold property, you need to pay particular attention to the terms of the lease. Other than in Scotland, most flats and maisonettes and a few other properties are leasehold.

Your legal advisers are responsible for checking the lease for you, but they do not normally see the property. The surveyor may note specific features that may have legal consequences. These matters will be set out in section I of the HomeBuyer Report and you should give a copy of the report to your legal advisers immediately.

Unless it says otherwise, when deciding on the Market Value of the property, the surveyor assumes that all the terms of the lease which might have an effect on the value are standard and that only a small ground rent is payable.

The surveyor also assumes that:

- if there are more than six properties in the building, the property is managed either directly by the freeholder or by a professional managing agent;
- if there is more than one block in the development, the lease terms apply (except for upkeep of common roads, paths, grounds and services) only to the block the property is in;
- you have the right of access over all shared roads, corridors, stairways and so on, and the right to use shared grounds, parking areas and other facilities;
- all the leases are the same in all important respects if there is more than one leaseholder;
- there is no current dispute, claim or lawsuit relating to the lease;
- the lease has no particularly troublesome or unusual restrictions;
- the unexpired term of the lease is 70 years (that is, the lease has at least 70 years still to run); and
- the property is fully insured.

When calculating the reinstatement cost, the surveyor assumes that the property is insured under a satisfactory policy covering the whole building. (The 'reinstatement cost' is the cost of rebuilding an average home of the type and style inspected to its existing standard using modern materials and techniques and in line with current Building Regulations and other legal requirements.)

Your legal advisers should check the full details of any lease. You should also ask your legal advisers the following questions.

- (a) Are the other flats occupied by owners or tenants?

## Leasehold properties advice

---

- (b) Is there a management company or a managing agent (or both) correctly set up to deal with running and maintaining the block the property is in?
- (c) Who is the 'dutyholder' under the *Control of Asbestos Regulations 2006*? Your legal advisers should also get confirmation that an asbestos register and current management plan are in place, and confirmation of any associated costs that you may have to pay.
- (d) Is there a suitable maintenance and replacement fund, with suitable reserves, to deal with:
  - general cleaning;
  - maintaining and repairing the shared parts;
  - repairs to the main structure;
  - shared heating systems; and
  - repairing and maintaining lifts and so on?
- (e) How much is the ground rent?
- (f) How much was the last paid maintenance or service charge and what period did it cover?
- (g) Are the service charge accounts satisfactory and up to date?
- (h) Are there any existing or likely management problems or disputes, or any known repairs or programmed work still to be carried out, which would affect the level of the maintenance or service charge to be paid?
- (i) Are services regularly and satisfactorily maintained and are there satisfactory and current certificates for:
  - any lifts;
  - the fire escapes and fire alarms;
  - the security systems;
  - any shared water and heating systems; and
  - other shared facilities?
- (j) Is the liability for repairs clearly set out for repairs to the property, to the shared parts and the main structure?
- (k) Is the liability for repairs shared equally between leaseholders and is there a suitable process for settling any disputes which may arise in this area?
- (l) Is it the management company or each individual leaseholder who is responsible for the building insurance, and is there a block insurance policy?
- (m) Are there any unusual restrictions on the sale of the property?

If the property is a leasehold house, it is not likely to share responsibilities with other building owners, and so may not involve management companies, service charges and so on. You should ask your legal advisers to confirm this. You may also want them to investigate the possibility of buying the freehold (which might be complicated).

Appendix C – Example Building Survey

**Building Survey Report**

**Address:** Sheffield

**County** Sheffield City Council

**District** Sheffield City Council

**Surveyor**

**Date of Survey** 21 / 06 / 2017



Street, Bury,

Company Number:  
VAT Number:

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Signature: \_\_\_\_\_

BSc (Hons) MRICS

**FOR AND BEHALF OF**

Date of Report: 22<sup>nd</sup> June 2017



**1.0 About This Report**

**1.1 Address of property surveyed (The Property)**

Sheffield

**1.2 Brief**

Instructions were received from Dinesh Seneviratne on the 18<sup>th</sup> June 2017 to undertake a Building Survey and produce a report detailing findings.

**1.3 Date of Inspection**

The inspection was undertaken on the 20<sup>th</sup> June 2017; during the survey, the weather was sunny and dry. The thermo-hygrometer readings of the external conditions were as follows

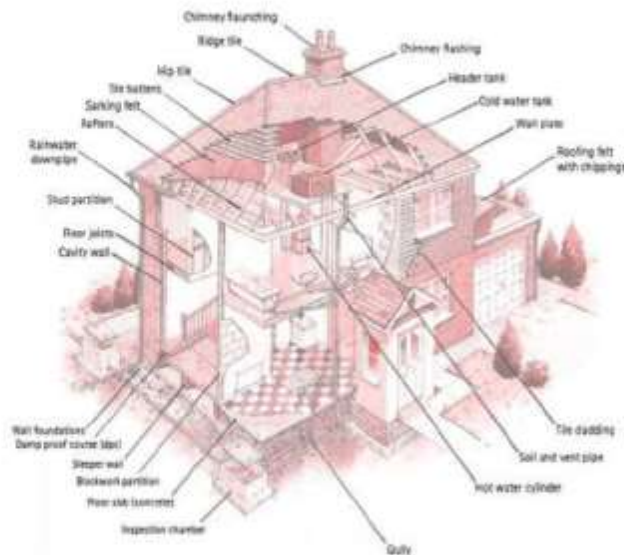
Temperature:	24.2°C
Relative Humidity:	60.8%
Dew Point:	16.1°C
Absolute Humidity:	13.43g/m <sup>3</sup>

At the time of the inspection the property was unoccupied, some possessions were placed against walls and floors were covered in the front left hand bedroom

**1.4 Surveyor who inspected The Property (The Surveyor)**

**1.5 Report prepared for (You/The Client)**

Mr.





## 2.0 Terms of Engagement

1. This service is broadly equivalent to RICS level three as described in the RICS guidance note: Surveys of Residential Property 3rd edition.
2. The Surveyor will undertake a visual, non-destructive, inspection of so much of the exterior and interior of the property as is accessible safely and without undue difficulty (unless agreement for invasive inspections are gained – see point 2 below). Accordingly, the report will cover all that part of the property, which is visible whilst standing at the various floor levels. The Surveyor will open trap doors where accessible and possible with safety and without undue difficulty. However, he/she will be under no obligation to raise floorboards or to inspect those areas of the property that are covered, unexposed, or are not readily accessible with safety and without undue difficulty.
3. The Surveyor has no authority to cause damage to any part of the building in order to further his/her investigation. However, the Surveyor may recommend if he/she considers it advisable to open up and expose parts of the property for a more detailed inspection. The surveyor will by prior agreement of the property owner open up and make invasive inspections where deemed necessary.
4. The inspection will include, subject to reasonable accessibility with safety and without undue difficulty, the roof space(s) without moving insulation material. Inspection of the roof space is confined to details of design and basic construction; individual timbers are not specifically examined although, where defects are observed as part of the general examination, such defects will be noted in the report. It is not possible to report on the condition of flues or the presence of flue liners. The report will not advise upon whether or not any chimneys can be used.
5. The outer surfaces of the roofs will be inspected from ground level, or with close inspection if they can be readily accessed from a 3 metre (10ft) ladder.
6. Except where the contrary is stated, woodwork, foundations and other parts of the structure which are covered, unexposed or inaccessible, will not be inspected and the Surveyor will be unable to report that such parts of the property are free from rot, beetle or other defects. The report will not purport to express an opinion about or to advise upon the condition of uninspected parts and should not be taken as making any implied representation or statements about such parts.
7. Visual inspections will be made of the services. An assessment of the suitability, method of installation, condition, efficiency and capacity of any central heating system, boiler or other equipment can only be made by specialist testing. The safety, standard of workmanship, and state of repair of the gas and electrical installations are also outside the scope of this report.
8. Comments on attached garages and other attached outbuildings are limited to significant defects only. Detached out buildings and grounds are excluded unless by prior specific agreement.
9. The report is provided for the sole use of the named client and is confidential to the client and his/her professional advisers only. No responsibility is accepted to others. The Surveyor accepts responsibility to the client alone for the stated purposes that the report will be prepared with the skill, care and diligence reasonably to be expected of a competent Surveyor. No responsibility will be accepted to any person other than the client, and any such person relies upon the report at his/her own risk.
10. The report has been prepared by the Surveyor ('the Employee') on behalf of GPF Associates Ltd ('the Employer'). The statements and opinions expressed in this report are expressed on behalf of the Employer, who accepts full responsibility for these. Without prejudice and separately to the above, the Employee will have no personal liability in respect of any statements and opinions contained in this report, which shall at all times remain the sole responsibility of the Employer to the exclusion of the Employee. To the extent that any part of this notification is a restriction of liability within the meaning of the Unfair Contract Terms Act 1977, it does not apply to death or personal injury resulting from negligence.
11. Clients are strongly advised to obtain competitive quotations from reputable contractors for any works recommended within the report, prior to exchange of contracts, in order that they are fully aware of their total financial commitment. Repair costs and general costings are not provided as part of the report unless by separate agreement.
12. Reinstatement Costs and property Valuation are not provided as part of this report.
13. The client will pay GPF Associates Ltd the agreed fee for the survey within 14 days of issue of invoice.
14. Complaints Handling Procedure: Any complaints will follow the complaints handling procedure.
15. Liability Cap: Our aggregate liability arising out of, or in connection with this instruction, whether arising from negligence, breach of contract, or any other cause whatsoever, shall in no event exceed the lesser amount of 100 times the net fee paid or £250,000.00 This clause shall not exclude or limit our liability for actual fraud, and shall not limit our liability for death or personal injury caused by our negligence.
16. The costs stated within the report are an estimate and competitive costs should be obtained.

### In making the report, the following assumptions will be made:

- That no high alumina cement concrete or calcium chloride additive or other deleterious material was used in the construction of the property. Neither will comment be made on any assumed health risk related to any structural or cavity fill material which may be covered and unapparent from the inspection or any ground released gasses or other contamination or noxious seepage.
- That the property is not subject to any unusual or especially onerous restrictions, encumbrances or outgoings and that good title can be shown.
- That the property and its value are unaffected by any matters which would be revealed by a Local Search and Replies to the Usual Enquiries, or by a Statutory Notice, and that neither the property, nor its condition, nor its use, nor its intended use, is or will be unlawful.
- That the inspection of those parts which have not been inspected would neither reveal material defects nor cause the Surveyor to materially alter his opinion.

### **3.0 Executive Summary**

Fundamentally the building is dated and requires a full refurbishment and repairs to all parts of the building. We would consider this to be a 'project' property.

Internally there was evidence of structural movement as the floors were uneven but stage. There is evidence of movement to the rear extension and works may have been undertaken to the right-hand side as the DPC differs from the rest of the property. There is hairline to minor cracks to the render of the main building however without disruptive works it cannot be determined if it is thermal or a defect. There was no evidence of bulging or moderate to large cracks internally to suggest any major issues. We recommend visual monitoring and the render is removed to the rear extension.

The issues at the property are examined throughout the report, but the items which should be considered as a priority are:

- Minor roof works are required to make the property fully watertight.
- Review of the gutter arrangements as several downpipes do not discharge correctly.
- Inspect the rear extension where mortar is hollow
- Improve sub-floor ventilation and roof ventilation
- Improve ventilation within the property
- Full modernisation internally

Prior to exchange of contracts, we recommend that investigations are made for the following items:

- Has cavity wall insulation been installed (no visible signs of installation)
- Any planning permission or documentation for the extension to the rear
- All certificates and O&M manuals are obtained

The use of traditional materials such as lime mortars, plasters and renders is highly recommended. These are compatible with the existing fabric and the technology the building employs.

Clearing out of gutters, undertaking roof surveys and generally being aware of the building's condition, on a pro-active rather than a re-active basis, is proven to save money in the long term.

We have estimated that the works to bring the property up to an acceptable standard would be in the region of £40,000.00 - £50,000.00.

**4.0 Property Overview**

*Directions "right" and "left" when used in this report are as if viewing the property from the road facing the front elevation.*

149 Ringinglow Road is a 2-storey semi-detached property; with the roof space converted and a basement.

The property was constructed circa 1920-1930's. The property was built during the cross over period from when buildings were built with traditional materials and the introduction of cement. The building is constructed of cavity masonry walls. The mortar beneath the cement pointing and within the basement shows evidence of a hot lime mix. The full mix cannot be determined however it was built as a breathing structure with evidence of a bitumen DPC.

The floors throughout the property are of suspended timber with air bricks located around the perimeter of the property. Stretcher bond brickwork is visible to a height of 670mm then the remainder of the property has a cementitious pebble dash render.

The roof is covered with plain tiles and the underside of the roof is under-torched. There are two chimney stacks one to the rear and one to the front.

The property has a small front garden and a large rear garden.



**5.0 Observations**

**5.1 Roof**

*Note - Roof could only be viewed from the ground floor, as no roof access was available.*

When the property was built, the roof space would have been under torched. Under torching is a traditional (very good) technique of keeping out wind driven rain and snow.

The hygrometer humidity readings were acceptable given the readings are higher externally. Through ventilation was limited; lack of ventilation and raised moisture levels can increase the risk of timber decay and infestation.

Area	Temperature °C	Relative Humidity %	Dew Point °C	Absolute Humidity g/m <sup>3</sup>
External	24.2	60.8	16.1	13.43
Loft	23.7	58.5	15.1	12.55
Eaves	23.5	52.9	13.3	11.20

The following issues were noted that could lead to moisture ingress or defects:

Roof Covering

- The roof is covered with plain tiles, the pitch and the ridge line is acceptable with no significant sagging or distortion noted. The coverings appeared reasonable and serviceable. Medium term we would recommend that the condition of the roof is reviewed and costs depending on condition are allowed for the roof to be re-covered.
- We noted several slipped / missing tiles to all areas of the roof.
- The ridge tiles themselves appear in good condition, but have been set in a cementitious mortar which is brittle, inflexible and has subsequently failed, leaving large gaps for water ingress.
- The roof has a covering of lichen and moss growth which will eventually cause the tiles to deteriorate. The covering is unsightly.
- The wet verge is in fair to poor condition. Cementitious mortar has been applied which has cracked. There is a health and safety concern as parts of the mortar are loose and could fall.
- The overhang projection of the tiles at the verge is inadequate but does not appear to be causing any moisture ingress or saturation of the gable wall.
- The roof has a dormer to the front pitch which overlooks the main roof. The leadwork appeared in fair condition and no leaks were visible internally. Medium term we would allow to inspect and budget costs are allowed for the lead replacement.



Slipped / missing tiles / dormer



Slipped / missing tiles / dormer



Wet verge



Ridge line

Roof Void / Timbers

The roof space has been converted; given the ceilings and partition walls are lath and plaster we anticipate that the conversion occurred between 1920 – 1930. The majority of the underside of the roof is covered; there will not be any structural drawings or building control approval for the works. There is a small loft which is accessed through a hatch on the landing. There is another loft space within the eaves to the rear.

- Internally the roof is in an adequate state of repair, the roof void has been filled with Rockwool and sections of the torching has de-bonded and is lying on the insulation.
- There was minor evidence of previous timber infestation however the timbers were dry and as long as they remain dry and roof space is ventilated then no further works are required.
- There was a large build-up of salts around the chimney stack within the eaves section of the roof space.
- Salts / condensation mould (fungal) growth were present in isolated areas. The mould is due to a lack of through ventilation.
- Many of the timbers were tested with a moisture meter and were found to be dry. A dry roof with a low risk of decay mechanisms is below 15%. 18% to 27%. To put this into perspective, dry rot spore germination happens between 27 – 30% and wood-boring insects thrive in conditions above 18%.
- There is minor cracking around the purlins which are placed in the gable wall. It is difficult to inspect externally due to the render. These do span to the ceiling of the 1<sup>st</sup> floor. There were no signs of failure or signs of progressive movement at the time of our inspection and the decoration was dated.
- Repairs have been carried out to the roof with newspaper and felt.





Roof Space



Roof Space



Salts around chimney breast



Salts and staining to timbers and repairs



Cracking below purlins



Crack going down the stairs

Recommendations

- Allow for 2 roofers for 2 days to overhaul roof providing ventilation, back bedding ridge tiles in a hot lime mortar, remove verge and re-point using a hot lime mortar and applying ferrous sulphate to the roof and re-fixing cracked/slipped tiles.
- Strip out Rockwool insulation and debris, replace with a breathable insulation i.e. sheep's wool.

Building Survey

Road

- The condition of the roof timbers was fair. The atmospheric conditions are suitable however through ventilation needs to be increased. Alternatively, a humidity control fan can be installed.
- Hoover salts from the chimney breast and timbers
- Replace section of plasterwork, inspect cracks if localised repairs can be undertaken; stitch cracks and re-plaster

There are a lot of salts present within the loft space, which is a concern as these can be hygroscopic and will turn into moisture should condensation be present.

<b>Estimated Section Total:</b>	<b>£ 4,000.00</b>
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It is essential to note that should the roof covering be changed at any given time the weight of the replacement tiles should be considered as strengthening works would be required if a concrete tile was used (not recommended). Several issues were noted with the roof which need to be reviewed and monitored.

**5.2 Chimney Stacks and Fireplaces**

There are two brick chimney stacks which are shared with the neighbouring property. It is likely the stack contains 4 flues 2 two of which are shared with the neighbouring property.

On the ground floor the gas fires and surrounds are still installed but these are dated. The 1<sup>st</sup> floor fires have been blocked up and small vents are in place.

The issues identified are:

- The chimneys have a covering of lichen, vegetation present and moss growth.
- The flashing could not be inspected.
- In places the pointing was in poor condition.
- The majority of the lead flashing was in fair condition, to the rear sections of the leadwork were had become loose which could result in moisture ingress.
- Salts were noted internally on the stack as noted above. There was minor staining noted on the chimney breasts; this is likely to be as a result of condensation. Masonry in and around chimneys can be contaminated with salts from the burning of fossil fuels. Soot deposits on the inside of chimney flues contain salts, which, if they get wet because of condensation and lack of ventilation (caused by fireplaces being blocked up, restricted or altered) will form on the surface of the masonry. These salt deposits are hygroscopic, which means they will absorb moisture from the internal environment; once internal relative humidity exceeds 80% the salts will absorb the moisture in the air and become damp, staining the decorative finishes.



Front chimney stack – vegetation / loose pointing / dated leadwork



Rear chimney stack – lichen / loose pointing / dated and loose leadwork



Dining Room Fireplace



Lounge Fireplace

**Recommendations**

- Any redundant chimneys should have ventilation top and bottom to ensure through ventilation. The vents are small; it may be beneficial to vent the unused flues in the roof space.
- The leadwork should be overhauled short term. Within the medium to long term leadwork should be replaced with Code 4 lead to LSA Standards.
- Ensure the flues are cleaned out on an annual basis.
- It is recommended that prior to use of any of the chimneys, a qualified (NACS) person is engaged to check the chimney has a flue and it is in a serviceable condition for use.
- Obtain copies of the installation guarantee for fires and flues.

**Estimated Section Total:**

**£ 3,000.00**



**5.3 Rainwater Goods and Drainage**

It should be appreciated buildings built with soft materials such as these really need good rainwater goods to prevent deterioration of fabric. Rainwater running down elevations, broken gutters etc. are a major cause of preventable damage.

Rainwater goods and soil pipes are a mixture of uPVC and cast iron. As it was dry when the survey was undertaken, it is difficult to say exactly if / where leaks etc. are occurring. The rainwater goods are in fair to poor condition.

It is evident that there has been leaks from previous guttering as there was staining on the render. This should be reviewed when it rains. Several issues are listed below:

- The right-hand side downpipe does not discharge into the hopper correctly and it is evident that water splashes on to the render.
- The plaster gutter and downpipes are stained in places
- The gullies are littered with debris and to the rear various pipes discharge into the gully.
- Cement from the ridge has fallen into the gutters and will be restricting the flow of water.
- Cement is also visible within the downpipe.
- Two manhole covers were lifted and the clay drains appeared to be in working order as they were clear of debris.
- To the rear it was evident that there had previously been structural movement around the door. There is a manhole within close proximity but the manhole could not be lifted.



Downpipe not correctly discharging



Gutter full of debris



Staining to render



Square downpipe connecting into round gutter





Blocked gully



Staining to downpipe



Manhole to side of property



Manhole to front of property

Recommendations

- We recommend that a full CCTV drainage system is undertaken prior to the purchase of the property. Ensuring that cracks and blockages are identified as well as the locations.
- Ensure that existing gullies are free from debris and discharge pipes correctly discharge into gullies.
- Review gutters and downpipes to ensure they are free from leaks.

**Estimated Section Total:**

**£ 2,500.00**

**5.4 Windows Doors and External Joinery**

Generally, the UPVC windows and doors to the property are in fair condition; it is common for UPVC windows to have a lifespan between 20-30 years. The window frames were installed in 2000; the timber surrounds have decayed in places.

Lintel repairs are evident and there is cracking around the sills and heads of the window.

The glazing units should be safety rated due to the height of the sill.

The front door is timber the timber frame has decayed and the door is dated.

Timber fascias are present at high level and above the bay window



Decay to timbers and UPVC windows

Recommendations

- To preserve the timbers, it is essential that they are correctly overhauled. Intrusive works are required but the timbers can be repaired. Once repaired all paintwork should be removed and decorated with a linseed oil paint. Modern paints trap moisture and decay the timber behind the coating.
- The front door requires replacement

<b>Estimated Section Total:</b>	<b>£ 2,000.00</b>
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Within the next 5-10 years we would budget to replace the windows and doors with new UPVC windows which have trickle vents installed.

To comply with Building Regulations FENSA Certificates should be provided for any windows installed post April 2002.

### 5.5 External Walls

The external walls to the house are of a cavity construction. The walls are covered with a cementitious pebbledash render. The full mix of the mortar which the property was built with could not be fully determined without further analysis. Internally there was evidence to suggest the walls were built with a mortar containing lime and given the age of the building the breathability principals would apply. [Link to Energy Efficiency in Historic Building – Early Cavity Walls](#)



Softer mortar than cement – white flecks visible likely to be un-slaked lime

#### Observations

- The walls appear reasonably straight and even given their age, with no indication of serious cracking, bulging or structural movement.
- The render has cracks visible when looked at closely. It is difficult to inspect due to the pebble dash. The cracks varied in length but in width they were hairline to minor.
- The render had lost adhesion in places as it was hollow; the majority appeared firm when tested with a hammer. Generally, it is in fair condition with areas needing repairs and areas which are in a worn condition. Around the window reveals the render was in poor condition and had fallen off in places.
- Cement render will trap moisture and result in penetrating damp and corrosion of wall ties if not managed.
- The single storey extension render was in poor condition and we suspect re-building works have been undertaken as the DPC is plastic to the right-hand elevation and the full section of render has been replaced.
- Various repairs have been undertaken to the render and these sections are clearly visible. The majority of the repairs are above the windows suggesting lintel repairs.
- The render is dirty and heavily stained.
- Where the extension abuts the building and to the rear right and corner of the extension a vertical crack is present.
- The drips to the window sills are insufficient.
- Various fixings are present within the walls
- Sub floor vents have been blocked up, filled with debris and vegetation is present.
- The majority of the DPC has been covered with cement. A black bitumen DPC was incorporated when the property was built. This bridges the cavity and spans across both the external, cavity and internal wall.
- The metal cavity wall ties were not inspected; inspection of the cracks was also limited due to the render.
- Cracks were noted internally but these were not mirrored externally

Buildings of this age generally experience movement due to various issues such as settlement caused by localised ground movement and overloading of structural timbers. In our opinion, the hairline / minor cracks are due to the hard cement render and likely a lack of lintels.

We are not ruling out cavity wall tie failure. This is where the wall ties have become dirty or covered in mortar dripping during construction. This then results in moisture penetrating into the building and causes corrosion which causes the tie to fail. Normally the wall will crack at regular intervals and bulging would be present. Although cracking was noted the render restricted a further inspection but no bulging



or internal related cracking was visible. In the Sheffield area cavity wall tie failure is common due to the material mixed within the mortar. As the corrosion occurs within the cavity due the materials used there are usually limited signs and failure goes unnoticed. A further inspection could be carried out by intrusive investigation; alternatively, a budget is allowed for inserting new ties.



Cracks around the joints were repairs have been undertaken



Areas of repairs and Staining



Example of cracks to render



Cracks above window head



Section of rebuilding and new render which has a vertical crack



Worn render to extension

Recommendations:

- Remove render to rear extension inspect cracking and re-render. The house render is in fair condition but loose in places; the cracks need to be filled and repairs be undertaken.
- Air vents need to be clear of debris and correctly sized and spaced every 1.5m ensuring they are correctly detailed at corners.
- New drips need to be created on the sills

<b><u>Estimated Section Total:</u></b>	<b><u>£ 8,500.00</u></b>
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We suggest the render will last between 2–5 years but a budget should be allowed for replacing the render. We recommend that an NHL 2 or 3.5 render is used and decorated with a breathable paint. This will last longer than a cement render and can resist mould growth and staining. When the render is removed the walls should be checked and the cavity should be cleared of debris (*if present*). Ventilation of the cavity is essential. When these buildings were built they were designed to be vented at the bottom and the top of the wall.

Cavity wall insulation in a building of this age contributes to defects such as condensation, corrosion of wall ties and penetrating damp. We do not recommend this as in our opinion the cavity should be kept clear and vented.



## 5.6 Internals

The internal elements of the house are in a dated condition but the condition of the building fabric is fair. A full redecoration and plaster repairs are required to be undertaken to bring the property back to a habitable condition. We do not comment on internal decoration – the suitability of which is subjective.

### Ceilings

The ceilings throughout the property are the original lath and plaster. Ceilings are mainly in good condition with hairline to minor cracks noted; minor repairs are required which are likely to be completed during re-decorating. Should any areas require additional supports then stainless-steel screws, nylon washers and plastering over; alternatively, the broken sections can be carefully taken down, new lathes installed and repaired.

Lath and plaster ceilings will crack due to movement; there was limited evidence to suggest that any of the cracks were as a result of a serious defect.

The original in-situ coving is present there is also cracking visible which will be rectified when the re-decoration works are undertaken.



Example of cracks to ceiling

### Floors

We noted evidence of beetle and decay in the basement especially underneath the porch; this section will need taking up and replacing. Ventilation needs to be increased and this will resolve the issue and the beetle will become inactive. The air vents have been blocked up with debris, vegetation and cement. We do not recommend any chemical treatment although it is likely the timbers have been treated. BS 7913 (British Standard relating to the repair of historic buildings) advises that dry timbers and ventilated areas will not be damaged by decay or infestation.

Timbers had moisture present but this could be a false reading due to chemicals being applied to the timbers. However cross ventilation needs to be improved and the timbers will be kept dry.

The floors are uneven in places which is common for a building of this age; but generally, in a stable and firm condition. The rear section of the dining room floor was 'bouncy.' We recommend that the joist ends are checked.

Within the extension a concrete and plastic DPM has been laid, moisture staining is visible and sub floor vents are not correctly spaced. As the plastic DPM is not lapped into the DPC it will force moisture sideward resulting in moisture stress and the moisture will form at the base of the wall; with lack of ventilation further moisture will be formed through condensation and pressures within the wall will be increased.

Building Survey

Road



Moisture meter showing high readings



Decay to timber floor under porch



Blocked up air vent



Blocked up air vent



Plastic DPM visible and moisture at the base of the wall



Plastic DPM visible and moisture at the base of the wall

Internal Walls

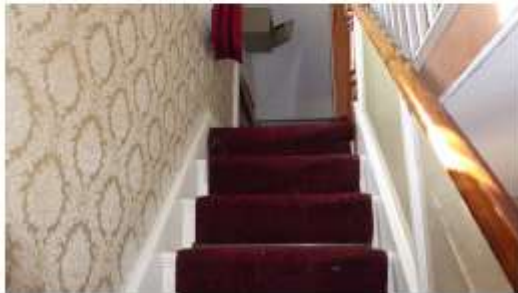
We anticipate the majority of the original plasterwork has been retained and the traditional finishes are still present. There has been a small amount of modern materials used to the rear extension. It is difficult to tell what type of plaster it is without making inspection holes.



The finishes in the property are mainly wallpapered and painted with emulsion paint. Given the age of the property and the plaster exposed in the basement it is likely to be lime plaster. Wallpaper will restrict breathability but the plasterwork was in fair condition. That said, there were very few defects because of the wallpaper and no real cause to remove or undertake replacement works. However, we anticipate modernisation works to be undertaken.

Modern plasters should not be used within a traditionally built property, the plasters should be lime to allow the building to breathe. Modern plasters will trap moisture and result in damp and decay to timbers.

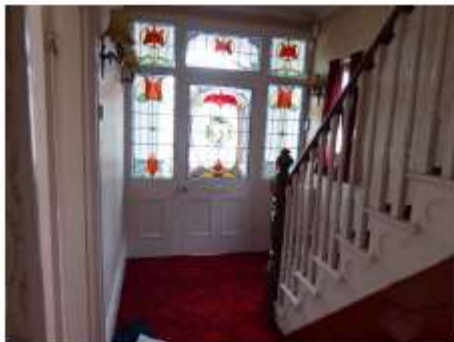
Hairline to minor cracks were present throughout the property. There was no evidence to suggest any recent movement; the cracks should be monitored. If plasterwork is taken off the bricks can be stitched and the area should be re-plastered.



Staircase with glass panelling



Bedroom



Hallway



Landing



Kitchen



Toilet

Internal Joinery

The internal joinery comprises mostly original solid timbers, which appear in aged condition. They could be repaired (cracks repaired etc) but they are characterful as is. The stained glass porch doors were also in good condition and characterful.

The glass to the staircase leading up to the roof space is dangerous and should be replaced and strengthened with timber.

<b><u>Estimated Section Total:</u></b>	<b><u>£ 15,000 - 20,000</u></b>
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The budget cost is hard to estimate as we are un-aware of your overall intentions with the building survey. We have allowed for rectifying defects such as:

- Sub-floor ventilation, replacement of defective timber flooring
- Re-plastering of plaster to the extension
- Making good cracks
- Localised plaster repairs
- Good quality kitchen
- New panelling to staircase
- Basic redecoration

**5.7 Moisture / Damp / Ventilation**

Due to the age of the building, it would have been constructed with a damp proof course. When inspecting the basement, it was evident that bitumen had been used and this spanned over the brickwork into both brickwork walls (*viewed above the air-vent*). The DPC was only visible in localised areas.

The property would also have relied on adequate internal ventilation and breathability of the structure especially at low level. In a traditionally built property it is essential to control moisture internally through ventilation and vapour permeable materials.

Internally there is no visible evidence of internal damp with the exception of the toilet in the extension. Humidity levels were recorded and there was no evidence to suggest any issues. We did note the ground levels have bridged the sub-floor vents in places especially to the rear. In these types of property, it is common for the cavities to become blocked with debris resulting in a bridge allowing moisture to penetrate into the internal leaf.

Due to ground levels, blocked and incorrectly spaced air vents; moisture is forced into the basement. Without adequate ventilation, the area will become saturated; the humidity levels will increase allowing infestation and decay to occur. Adequate sub floor ventilation, ideally air vents or air bricks should be provided at every 1.2 – 1.5 metre centres, with attention paid to corners of buildings. Cross ventilation should be provided to opposite ends of the building to minimise the risk of decay developing within ground floor timbers. There is evidence of decay as noted above but can be repaired.

From the readings taken with the hygrometer it identifies that the atmospheric conditions within the property are adequate. Normally a dry house would be in the region of 6-7g/m<sup>3</sup> but we have to take into consideration the external conditions as it was a humid day. Generally, the levels were lower internally than externally. Without carrying out specialist testing the moisture levels of the wall cannot be tested but internally there was limited evidence of damp.

It is essential to control ventilation during condensation season.

Area	Temperature °C	Relative Humidity %	Dew Point °C	Absolute Humidity g/m <sup>3</sup>
External	24.2	60.8	16.1	13.43
2 <sup>nd</sup> Floor	23.2	54.4	13.5	11.35
1 <sup>st</sup> Floor	23.1	55.9	13.8	11.58
Lounge	23.1	57.8	14.3	11.97
Dining Room	23.9	59.6	15.6	12.95
Kitchen	21.9	60.3	15.3	12.80

When living in the property ventilation is important as this will help the air changes to ensure the moisture within the air is kept to a reasonable level. This will contribute to a healthy lifestyle, preservation of the timbers and the economic running of the building. Building regulations state that mechanical humidity controlled vents should be used in kitchens and bathrooms. Natural ventilation should be present in other rooms.

With the benefit of breathable materials, the property will be drier and more economic to run. A constant heating regime, 15 degrees as a minimum, coupled with measures to make the building envelope more permeable, will help prevent future damp problems.

Ventilation and a constant heating regime will reduce the chance of condensation.

Cellar

The cellar is not a dry area as it is underground.

- The atmospheric conditions within the cellar were inadequate and improvements are required; if not improved the conditions are correct for infestation and decay to occur. Humidity levels



need to be controlled and kept in the region of 45%-55% or within close proximity of the external conditions.

- The areas under the dining room and under the lounge could not be accessed but were viewed through the air vent. Ventilation also needs to be provided at low level of the dividing walls but must not comprise the structure.
- Ventilation is present but through ventilation is limited therefore this needs to be improved.
- There was a crack to the basement dividing wall which appeared historic.

Area	Temperature °C	Relative Humidity %	Dew Point °C	Absolute Humidity g/m <sup>3</sup>
External	24.2	60.8	16.1	13.43
Under Kitchen	19.7	74.7	14.9	12.59
Under Hallway	19.4	77.6	15.4	12.99

Basement walls should not be tanked or covered with modern paints they should be left exposed or covered with limewash.

<b>Estimated Section Total:</b>	<b>£ 2,500.00</b>
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Important Notes on Damp

*Hand held non-invasive moisture meters (protimeter etc.) are not capable of determining moisture content of the masonry and are designed for timber. No carbide or detailed damp testing was undertaken and the survey was limited in this respect. Carbide testing involves drilling a small sample.*

*Note - Further reading and referencing made in respect of why impervious materials (eg. cement and gypsum plasters) are not appropriate for traditional buildings and the importance of maintaining breathability can be found at:*

- British Standard – BS 7913 The Conservation of Historic Buildings*
- SPAB Technical Information Sheet No 4 – The Need for Old Buildings to Breathe 1993*

**5.8 Ground Levels / External Areas / Flooding / Radon**

Best building practice is to have external ground levels at least 150mm below the level of the base of the internal floor. This is to prevent moisture being at the base of the wall and an area for evaporation to take place.

- Ground levels to the property are high to the left-hand side and rear. Consideration should be given for a French drain to the foot of the gable wall and rear elevation if not reduced. Also, any paving should slope away from the property and preferably into drains.
- The concrete paving is cracked to the front of the property and is in a worn condition.
- The render to the garden wall is worn and cracked.

**Estimated Section Total:**

**£ 6,500.00**

Flooding

A full flood assessment has not been carried out. We have referenced the Environment Agency Flood Map for Planning, it identifies the property is an area of low probability.

Flood Risk Check

Radon

We have reviewed the following website to review the radon risk:

<http://www.ukradon.org/information/ukmaps>

A full detailed assessment has not been carried out but the map advised that the house is an area of elevated radon levels.

UK Radon, a part of Public Health England, does however recommend that all properties are tested for radon. Ask the vendor if any testing has taken place. If not, you can conduct a test yourself for under £50.00 with home testing kits available from UK Radon or from the following location: <http://www.ukradon.org/information/measuringradon>



**5.9 Services**

Services are not tested or commented on as far as compliance with current regulations. It is recommended a qualified person from NICEIC / Gas Safe UK are commissioned to test electric / gas services. Save for this the following general comments are made;

Electrics

Though the electrical circuits within the building are working, the consumer unit/fuse box is of considerable age and it would be prudent to request an independent electrical check from an electrician qualified under one of the government-registered schemes if retained:

<http://www.electricalsafetyfirst.org.uk/find-an-electrician/choosing-an-electrician/england-and-wales/>

Alterations have been made to the system and without a full condition report the condition cannot be determined. Given the extent of the works we would recommend that the re-wire in undertaken.

Heating

The boiler system is a traditional combination boiler which is located within the rear extension.

We recommend that guarantees are obtained as it is likely to be still in warranty.

Water

The water supply is in the basement. A plumber should review the installation and replace any leadwork with copper. There was corrosion to the copper pipes in places; all joints should be checked for leaks.

<b><u>Estimated Section Total:</u></b>	<b><u>£ 8,000.00</u></b>
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**6.0 Legal Items**

**6.1 Planning**

From a brief search, there have been no planning applications for the property.

Your solicitor should check the plans to ensure that the extension is marked on the plans.

**6.2 Building Regulations**

With regards to Building Regulations no past information has been provided nor have any searches been carried out.

**6.3 Mining**

According to the Coal Authority website the property is with the 'NOTTS' coal mining reporting area. Further information and details should be provided by your searches carried out by you solicitor. (see <http://mapapps2.bgs.ac.uk/coalauthority/home.html>)

**6.4 Bats**

It should be noted that all bats and their roosts are protected under Section 9 of the Wildlife and Countryside Act (1981) and it is an offence to kill, injure, disturb, handle, etc. any bats or to disturb their roosts (even those that are not currently in use). Any offence could result in prosecution and a heavy fine. Consideration should be given when carrying out all works especially to roofs or external walls; further information can be provided by the Local Authority.

**6.5 Asbestos**

We have not carried out an asbestos survey. Given the age of the buildings asbestos may be present. A Refurbishment and Demolition Survey should be undertaken before carrying out any repair and refurbishment works to the property.



Appendix A – Glossary

Glossary of Terms

**Aggregate:** Pebbles, shingle, gravel etc. used in the manufacture of concrete, and in the construction of "soak ways".

**Airbrick:** Perforated brick used for ventilation, especially to floor voids (beneath timber floors) and roof spaces.

**Architrave:** Joinery moldings around window or doorway.

**Asbestos:** Fibrous mineral used in the past for insulation. Can be a health hazard – specialist advice should be sought if asbestos (especially blue asbestos) is found.

**Asbestos Cement:** Cement with 10-15% asbestos fiber as reinforcement. Fragile – will not bear heavy weights. Hazardous fibers may be released if cut or drilled.

**Ashlar:** Finely dressed natural stone: the best grade of masonry.

**Asphalt:** Black, tar-like substance, strongly adhesive and impervious to moisture. Used on flat roofs and floors.

**Barge Board:** See "Verge Board".

**Balanced Flue:** Common metal device normally serving gas appliances which allows air to be drawn to the appliance whilst also allowing fumes to escape.

**Beetle Infestation:** (Wood boring insects: woodworm) Larvae of various species of beetle which tunnel into timber causing damage. Specialist treatment normally required. Can also affect furniture.

**Benching:** Smoothly contoured concrete slope beside drainage channel within an inspection chamber. Also, known as "haunching".

**Bitumen:** Black, sticky substance, related to asphalt. Used in sealants, mineral felts and damp-proof courses.

**Breeze Block:** Originally made from cinders ("breeze") – the term now commonly used to refer to various types of concrete and cement building blocks.

**Carbonation (Concrete):** A natural process affecting the outer layer of concrete. Metal reinforcement within that layer is liable to early corrosion, with consequent fracturing of the concrete.

**Carbonation (Lime):** A natural process in where Lime render / mortar etc. "dries out" through carbonation.

**Cavity Wall:** Standard modern method of building external walls of houses comprising two leaves of brick or blockwork separated by a gap ("cavity") of about 50mm (2 inches).

**Cavity Wall Insulation:** Filling of wall cavities by one of various forms of insulation material **Not Recommended**

**Beads:** Polystyrene beads pumped into the cavities. Will easily fall out if the wall is broken open for any reason.

**Foam:** Urea formaldehyde form, mixed on site, and pumped into the cavities where it sets. Can lead to problems of dampness and make replacement of wall-ties more difficult.

**Rockwool:** Inert mineral fiber pumped into the cavity.

**Cavity Wall-Tie :** Metal device bedded into the inner and outer leaves of cavity walls to strengthen the wall. Failure by corrosion can result in the wall becoming unstable – specialist replacement ties are then required.

**Cesspool:** A simple method of drain comprising a holding tank which needs frequent emptying. Not to be confused with "septic tank".

**Chipboard:** Also referred to as "particle board". Chips of wood compressed and glued into sheet form. Cheap method of decking to flat roofs, floors and (with formica or melamine surface) furniture, especially kitchen units.

**Collar:** Horizontal timber member intended to restrain opposing roof slopes. Absence, removal or weakening can lead to roof spread.

**Combination Boiler:** Modern form of gas boiler which activates on demand. With this form of boiler there is no need for water storage tanks, hot water cylinders etc.

**Coping/Coping Stone:** Usually stone or concrete, laid on top of a wall as a decorative finish and to stop rainwater soaking into the wall.

**Corbel:** Projection of stone, brick, timber or metal jutting out from a wall to support a weight.

**Comice:** Ornamental moulded projection around the top of a building or around the wall of a room just below the ceiling.

**Coving:** Curved junction between wall and ceiling or (rarely) between ceiling and floor.

**Crack:** Cracks or fractures referred to in this report follow the classifications of Building Research Digest 251: up to 1mm = negligible or very slight, 1mm to 5mm = slight, 5mm to 15mm = moderate, 15mm to 25mm = severe, over 25mm = very severe.

**Dado Rail:** Wooden moulding fixed horizontally to a wall, about 1 meter (3ft 4in) above the floor, originally intended to protect the wall against damage by chair-backs.

**Damp Proof Course:** Layer of impervious material (slate, mineral felt, pvc etc)

**Deathwatch Beetle:** (Xestobium Refovillosum.) Serious insect pest in structural timbers, usually affects old hardwoods with fungal decay already present only affects timber which has a moisture content of 17%.



**Double Glazing:** A method of thermal insulation usually either:

**Sealed unit:** Two panes of glass fixed and hermetically sealed together; or

**Secondary:** In effect a second "window" placed inside the original window.

**Dry Rot:** (*Serpula Lacrymans*.) A fungus which attacks structural and joinery timbers, often with devastating results. Can flourish in moist, unventilated areas.

**Eaves:** The overhanging edge of a roof.

**Efflorescence:** Salts crystallized on the surface of a wall as a result of moisture evaporation.

**Engineering Brick:** Particularly strong and dense type of brick, sometimes used as a damp-proof course.

**Fiberboard:** Cheap, lightweight board material of little strength, used in ceilings or as insulation to attics.

**Flashing:** Building technique used to prevent leakage at a roof joint. Normally metal (lead, zinc, copper) but can be cement, felt or proprietary material.

**Flaunching:** Contoured cement around the base of chimney pots, to secure the pot and to throw off rain.

**Flue:** A smoke duct in chimney, or a proprietary pipe serving a heat-producing appliance such as a central heating boiler.

**Flue Lining:** Metal (usually stainless steel) tube within a flue – essential for high output gas appliances such as boilers. May also be manufactured from clay and built into the flue.

**Foundations:** Normally concrete, laid underground as a structural base to a wall: in older buildings may be brick or stone.

**Frog:** A depression imprinted in the upper surface of a brick, to save clay, reduce weight and increase the strength of the wall. Bricks should always be laid frog uppermost.

**Gable:** Upper section of a wall, usually triangular in shape, at either end of a ridged roof.

**Ground Heave:** Swelling of clay sub-soil due to absorption of moisture: can cause an upward movement in foundations.

**Gully:** An opening into a drain, normally at ground level, placed to receive water etc from downpipes and wastepipes.

**Haunching:** See "Benching". Also term used to describe the support to a drain underground.

**Hip:** The external junction between two intersecting roof slopes.

**Inspection Chamber / Man hole Cover:** Commonly called "man-hole": access point to a drain comprising a chamber (of brick, concrete or plastic) with the drainage channel at its base and a removable cover at ground level.

**Jamb:** Side part of a doorway or window.

**Joist:** Horizontal structural timber used in flat roof, ceiling and floor construction. Occasionally also metal.

**Landslip:** Downhill movement of unstable earth, clay, rock etc often following prolonged heavy rain or coastal erosion, but sometimes due entirely to sub-soil having little cohesive integrity.

**Lath:** Thin strip of wood used in the fixing of roof tiles or slates, or as a backing to plaster.

**Lintel:** Horizontal structural beam of timber, stone, steel or concrete placed over window or door openings.

**Longhorn Beetle:** (*Hyloterpe Bajulus*.) A serious insect pest mainly confined to the extreme south-east of England, which can totally destroy the structural strength of wood.

**LPG:** Liquid Petroleum Gas or Propane. Available to serve gas appliances in areas without mains gas. Requires a storage tank.

**Mortar:** Mixture of sand, cement, lime and water, used to join stones or bricks.

**Mullion:** Vertical bar dividing individual lights in a window.

**Newel:** Stout post supporting a staircase handrail at top and bottom. Also, the central pillar of a winding or spiral staircase.

**Oversite:** Rough concrete below timber ground floors: the level of the oversite should be above external ground level.

**Parapet:** Low wall along the edge of a flat roof, balcony etc.

**Pier:** A vertical column of brickwork or other material, used to strengthen the wall or to support a weight.

**Plasterboard:** Stiff "sandwich" of plaster between coarse paper. Now in widespread use for ceilings and walls.

**Pointing:** Smooth outer edge of mortar joint between bricks, stones etc.

**Powder Post Beetle:** (*Bostrychidae* or *Lyctidae* family of beetles.) A relatively uncommon pest which can, if untreated, cause widespread damage to structural timbers.

**Purlin:** Horizontal beam in a roof upon which rafters rest.

**Quoin:** The external angle of a building; or, specifically, bricks or stone blocks forming that angle.

**Rafter:** A sloping roof beam, usually timber, forming the carcass of a roof.

**Random Rubble:** Primitive method of stone wall construction with no attempt at bonding or coursing.

**Rendering:** Vertical covering of a wall either plaster (internally) or cement (externally), sometimes with pebble-dash, stucco or Tyrolean textured finish.

**Reveals:** The side faces of a window or door opening.

**Ridge:** The apex of a roof.

**Riser:** The vertical part of a step or stair.

**Roof Spread:** Outward bowing of a wall caused by the thrust of a badly restrained roof carcass (see "Collar").

**Screed:** Final, smooth finish of a solid floor; usually cement, concrete or asphalt.

**Septic Tank:** Drain installation whereby sewage decomposes through bacteriological action, which can be slowed down or stopped altogether by the use of chemicals such as bleach, biological washing powders etc.

**Settlement:** General disturbance in a structure showing as distortion in walls etc, possibly a result of major structural failure. Sometimes of little current significance.

**Shakes:** Naturally occurring cracks in timber; in building timbers, shakes can appear quite dramatic, but strength is not always impaired.

**Shingles:** Small rectangular slabs of wood used on roofs instead of tiles, slates etc.

**Soakaway:** Arrangement for disposal of rainwater, utilising graded aggregate laid below ground.

**Soaker:** Sheet metal (usually lead, copper or zinc) at the junction of a roof with a vertical surface of a chimney stack, adjoining wall etc. associated with flashings which should overlay soakers.

**Soffit:** The under-surface of eaves, balcony, arch etc.

**Solid Fuel:** Heating fuel, normally coal, coke or one of a variety of proprietary fuels.

**Spandrel:** Space above and to the sides of an arch; also the space below a staircase.

**Stud Partition:** Lightweight, sometimes non-loadbearing wall construction comprising a framework of timber faced with plaster, plasterboard or other finish.

**Subsidence:** Ground movement, generally downward, possibly a result of mining activities or clay shrinkage.

**Sub-Soil:** Soil lying immediately below the top-soil, upon which foundations usually bear.

**Sulphate Attack:** Chemical reaction, activated by water, between tricalcium aluminate and soluble sulphates. Can cause deterioration in brick walls and concrete floors.

**Tie Bar :** Heavy metal bar passing through a wall, or walls, to brace a structure suffering from structural instability.

**Torching:** Mortar applied on the underside of roof tiles or slates to help prevent moisture penetration. Not necessary when a roof is underdrawn with felt.

**Transom:** Horizontal bar of wood or stone across a window or top of door.

**Tread:** The horizontal part of a step or stair.

**Trussed Rafters:** Method of roof construction utilising prefabricated triangular framework of timbers. Now widely used in domestic construction.

**Underpinning:** Method of strengthening weak foundations whereby a new, stronger foundation is placed beneath the original.

**Valley Gutter:** Horizontal or sloping gutter, usually lead or tile-lined, at the internal intersection between two roof slopes.

**Ventilation:** Necessary in all buildings to disperse moisture resulting from bathing, cooking, breathing etc, and to assist in prevention of condensation.

**Floors:** Necessary to avoid rot, especially dry rot; achieved by airbricks near to ground level.

**Roofs:** Necessary to disperse condensation within roof spaces; achieved either by airbricks in gables or ducts at the eaves.

**Verge:** The edge of a roof, especially over a gable.

**Verge Board:** Timber, sometimes decorative, placed at the verge of a roof: also known as "barge board".

**Wainscot:** Wood paneling or boarding on the lower part of an internal wall.

**Wall Plate:** Timber placed at the eaves of a roof, to take the weight of the roof timbers.

**Wet Rot:** (*Coniophora Puteana*.) Decay of timber due to damp conditions. Not to be confused with the more serious dry rot.

**Woodworm:** Colloquial term for beetle infestation: usually intended to mean Common Furniture Beetle (*Anobium Punctatum*): by far the most frequently encountered insect attack in structural and joinery timber



## **Appendix B – General Advice**

### **Materials – Summary**

I have previously referred to 'breathable' and 'impermeable' materials. Since the 1930's, use of lime based mortars and plasters has been overtaken by fast setting gypsum plasters and cement based compounds. Instead of allowing moisture to freely circulate in a building and equalise with atmospheric conditions (as was the case in old buildings), modern materials are designed to be waterproof. In modern construction detail, this works - the building fabric is designed around the materials. In old buildings, use of modern materials only serves to trap moisture and creates accumulations that are usually referred to as 'rising damp' or 'salt damp'. A great deal of controversy surrounds 'damp proof courses'. Old buildings do sometimes incorporate a measure of damp coursing. By Victorian times, a row of impermeable engineering brick was often laid towards the bottom of the building. Slate would be lain within mortar beds. These were designed mainly to prevent surface water from permeating the mortar beds as underground drainage systems were still in their infancy and most rainwater and sewage still flowed in the streets. Modern damp courses form part of modern building design, and have little or no application in older buildings which are designed to allow moisture to diffuse out of the structure as fast as it enters. Injected damp courses have no purpose, and do not work.

Traditional materials (and those seen in the buildings in this survey) include stone, porous brickwork, lime mortar, lime plaster and breathable lime paints. Damp is normally as a result of a specific defect for example penetrating damp from a broken gutter, or raised ground levels, blocked drains or damaged flashings on a roof.

Modern materials include cement, cement based renders and slurries (often referred to as tanking), cement pointing to brickwork, gypsum plasters internally, plastic paints (masonry paints - often described by manufacturers as 'breathable' but are not), acrylic sealers, silicones, bitumen, bitumen roofing felts, and plastic membranes. The use of ANY of these in old buildings is inappropriate and likely to cause major problems with damp retention. They CAN be used, but only in specifically designed situations where airflow to the structure is maintained.

It should be noted that throughout the house, condensation problems will be encountered where airflow in rooms is limited. Modern windows are often not ventilated, and some chimneys may have been blocked. A sealed house is wonderful for keeping warm air into the house, but causes havoc with moisture levels within the fabric of the building (the warmer the air, the greater the levels of water which will be contained within it - derived from kitchens, bathrooms, and mainly from people breathing out moist air) - symptoms will include so called 'rising damp' patches on plasterwork on downstairs walls, especially external walls or those near chimneys, water condensing on and streaming down windows, odd patches of mould in areas of minimal air movement, and hollow sounding plasterwork when tapped, especially around windows and near floors. This list is not exhaustive, but I hope gives examples of the symptoms that can be experienced when subjecting an old house built with traditional materials, to modern and inappropriate building materials, for eg. UPVC windows, gypsum plaster, cement render, acrylic emulsion paints, wallpaper etc - anything which is plastic or impervious and prevents the fabric of the building from breathing.

### **Timbers**

There is a long held belief that all timber needs treating against an invading army of beetle and other pests intent on munching every piece of timber in a building. If timber is dry, it will not be affected. Death watch beetle has been shown in extensive research to only attack timber in excess of 17-18% moisture content. Most timbers in this country's buildings have probably been soaked in chemicals several times in their life, and we are starting to experience a phenomenon in surveys where perfectly dry timbers are showing as 'damp' when probed with a 'damp meter' - this is because of the hideous accumulations of toxic chemicals which are conductive and give false damp readings.

Dry timbers will not suffer insect or rot attack. Relative Humidity levels below 60% are ideal for prevention.

### **Ventilation to suspended floors**



In Alan Oliver's book "Dampness in Buildings" (BSP 1988) he suggests (page 115) 3000mm<sup>2</sup> of ventilation per metre of external wall, spread at 1.5 metre intervals. This seems a reasonable assumption allowing a corresponding "outlet" of air flow at the back of the property also. Spacing depends upon the position of sleeper walls and any other obstacles. Insufficient sub floor ventilation can lead to serious degradation of wooden floor boards, increase damp and moisture levels on the ground floor and also encourage dry rot – an extremely serious problem that is difficult to rectify. What is essential though is that existing vent holes are cleared of debris and not obscured in any way, there should be no debris underneath the floor and no sealed unventilated sections.

It is recommended that the ground level should also be reduced so that it is 150mm below the level of the underfloor vents.

### **Ventilation**

Ventilation, or lack of it, is the major cause of dampness in old buildings. Other direct causes are more easily diagnosed - high ground levels, broken gutters, broken pipes and drains amongst others. Old houses were inherently well ventilated. Usually timber floors, ventilated by large grilles. Air flowed freely in sub-floor cavities. Fires were open - air could flow up chimneys, drawing warmer dry air through the building. Windows were not hermetically sealed and draughty. People lived more 'outdoors' lives - windows were open, air flowed. Roof spaces were not blocked with insulation, and membranes had not been thought of - slates were 'torched' with permeable lime mortar. The main sources of moisture in those days were cooking, and people breathing. The building, because it was 'breathable' could absorb and release these small amounts of moisture without any danger of accumulation. Cooking moisture went up the chimney from the range which was always lit, with a constant draw of air going up the flue, taking steam with it.

Modern life in old buildings imposes a new set of rules. Cooking fumes do not go up chimneys. We take showers and create vast amounts of steam and moisture in bathrooms. We shut windows and seal them. We block off sub floor vents and cellars. We line roof spaces and insulate them. We coat the walls with plastic paints. The building ceases to breathe, and there is little or no airflow. Humidity levels rise, and moisture has nowhere to go, but slowly diffuse into building fabric, seeking the most porous fabric (usually soft brickwork behind gypsum plaster for example) and stays there, slowly accumulating. When this reaches saturation point we see the symptoms of 'rising damp' - flaking paint, 'damp' patches, loose plaster, salts on walls, rotted skirlings.

Research by English Heritage, Heritage Scotland, SPAB and others including our survey group and IHBC, is showing that if Relative Humidity is maintained between 50 and 55%, few, if any damp problems will occur, provided the building fabric is kept at or above 15 degrees Centigrade. To maintain a low RH level, it is necessary to introduce good ventilation and humidity extraction at source. There are 3 main areas - cellar and sub-floors need to be well vented. Cellars in particular need a through flow of air - NOT just a single hole in a wall somewhere - this does not allow through flow, and moist air is trapped. Bathrooms need effective extraction, humidity controlled, and at least 25mm gap under doors to allow fresh air into the room. After a shower, research shows that a bathroom of average size needs around 7 hours to return to ambient humidity with good extraction. Kitchens need automatic humidity controlled extraction. Dishwashers and fridges are a major source of humidity that we do not see. Another less obvious source is humans - we exhale around 2 litres of water a day. In an average house, the building fabric will have to deal with in excess of 15 litres of water daily. If good ventilation is provided, most of this can be removed from source and the building stays dry. If not ventilated, it is accumulated in the fabric, and damp problems start.

Humidity should be kept below 65% to prevent mould and above 40% to prevent the membranes in the eyes, nose and throat becoming too dry.

Gaps under doors help with ventilation and air transfer. Building regulations specify that there should be an undercut (gap) of 10mm above any floor finish. This allows air movement within the house. Ensure that the flat roof to the extension remains in good repair and when replacement is necessary, take the opportunity to increase the insulation in the roof to improve thermal comfort.

### **Climate Control**



Humidity controlled extraction is the best solution to old building construction, enabling you to maintain a sensible airflow, reduce moisture, and keep rooms much drier. Bathrooms, kitchen and bedrooms will all benefit from this approach

#### **Lime Specifications:**

Mortar in brickwork/ stonework to be raked out to 25mm depth (or 2.5 times the joint width), by hand – grinders must NOT be used, as these damages the top and bottom surface of the bricks.

Hot mixed lime mixes are quicklime mixed with aggregate (typically 1:3) and water to form a mortar / render / plaster.

The aggregate is dependent on the finish and the coat. Test cookies should be made of the mortar and render to ensure the requirements are met. We recommend that 5 test samples are included within your specification.

#### Aggregates

Scratch / Floating Coat - Nosterfield Grit Sand, Washed Cardewmires

Finishing Coat – Fine Silica Sand

Where the masonry is salt contaminated, the masonry should be allowed to dry before applying new renders/plasters. It is important to note salt contaminates should never be washed down, this will result in the crystallised salt returning to a soluble state and remaining in the pores of the masonry. Salts should be brushed from the surface.

Hair should be added to lime plasters and renders to give the mixture extra tensile strength. Hot Limes can have Pozzolans added in small quantities to give the render / mortar hydraulic properties but this should be carried out by an experienced plasterer. External renders / mortars can be coloured with a natural earth pigment.

Internal lime plastering to be over clean brickwork / stonework free of flaky lime, and all cement traces removed. Base coat can have fibreglass mesh applied into it, with build coat scratched to take topcoat. Plaster must be allowed to carbonate naturally for up to 6 weeks with no applied heat before painting with lime wash paints – which are totally breathable. On no account must modern acrylic paints or wallpapers be used over lime plaster.

Excellent lime products can be purchased in bulk, ready mixed from:

<http://www.lime.org.uk/>

<http://www.northwestlimesupplies.uk> (Hot Lime Pre-Mixed)

Ideal time to complete liming and rendering works is between April and September. A temperature of over 6 degrees C is required to ensure carbonation, so this work cannot be completed over the winter. Render should be wet down for several days during hot periods.

#### **Painting etc:**

General tips – only use clay paints (Earthborn range are good) which breathe. If taking wallpaper off, don't use steam strippers, which damage the lime plaster – score the paper and use water only. To clean up the surface if it is rough, use lime putty – you can get this from Ty Mawr lime, who supply ready made buckets of finishing coat, which is easily applied with a flat trowel and then polished up as needed with a rubber.

#### **Chimneys**

One of the most common causes of 'damp' problems in old houses is chimneys. To properly understand this, one has to look at the role of the chimney. In most old houses, there was one main chimney which served the kitchen - this would have had a range, kept burning for most of the time, and fuelled in the main with coal. Other chimneys in the house were used less frequently, some only on rare occasions when guests were present. When coal burns it releases amongst other things, ammonia. This reacts with air and forms nitrate salts which form part of the soot deposits in chimneys. They attack mortar and brickwork, which is why the top of chimney stacks are especially vulnerable to moisture and frost attack



as mortar is reduced to sand. Nitrates travel downwards in an ever-increasing triangle, spreading wide in walls and saturating the chimney stack. They are hygroscopic – i.e., attract moisture – so chimneys are often stained brown, appear to be suffering water ingress, when in actual fact they are soaked with salts, and no water is involved. A 'damp' meter will go off the scale, but brickwork is usually dry, but contains a chemical soup. The way to cure this issue is removal of any contaminated plasters, and frequent brushing and cleaning of affected brickwork. As salts migrate to the surface they should be removed. If left, they will absorb moisture in humid conditions and disappear into the brickwork. If brushed off, they are a finite resource, gradually reducing in concentration until they no longer are a problem.

Treatment of affected chimneys is a gradual process. First all flues should be fully opened up and thoroughly scrubbed down with chimney brushes to remove all loose deposits. Fireplaces and hearths need to be opened up, and inglenooks need to be taken back to the original fabric to remove salt contaminated material. Ideally during the course of works, say 12 months, the chimneys should be swept twice to remove as much accumulated salts as possible. Chimneys need to be capped with ventilated pots to prevent rainwater ingress. Where being used, they must be lined with 928 grade double walled stainless steel flues - NOT solid flue liners which trap moisture and allow deterioration to continue unseen. Salt affected plasters need to be removed, and exposed brickwork allowed to dry out and any salts brushed off. Badly affected areas should be left in a low humidity (less than 55% RH) environment for at least 3 to 6 months for salts to migrate outwards, and brushed clean at least weekly. Ideally contaminated mortar should be raked out to 30 or 40mm, and after leaving, and brushing down, re-pointed with a soft (NHL2.5) hydraulic lime mortar. If desired the wall can then be plastered in lime. It may stain - there is no way of stopping this - but if stained plaster is removed and replaced, the plaster has the effect of 'poulticing' brickwork and removing salts. Eventually stains will no longer affect it. Dabbing gypsum plaster and plasterboard is unacceptable and WILL fail very rapidly. Any form of gypsum or cement coating will trap salts, build moisture, and eventually fail. It will also irreversibly damage brickwork and stonework.

#### References:

The most important reference work which relates to old buildings is the latest British Standard: Guide to the Conservation of Historic Buildings: BS 7913:2013. This is published in conjunction with IHBC, by the British Standards Institute. The Standard covers Good Practise for works to older, traditional buildings – regardless of formal designation. It covers every aspect of old buildings – materials, history, survey standards, pathology (timber and damp), repair, and maintenance. It very clearly defines the role and responsibility of a building surveyor, and the need for surveyor to fully understand the history and development of the building – together with in depth knowledge of timber and damp issues.

1. General press release regarding thermal upgrading and inappropriate treatments:  
<http://www.spab.org.uk/media-centre/press-releases/press-release/?ContentID=186>
2. English Heritage – PPS5 Practise Guide, updated for NPFF changes
3. Spab Research paper (Society for the Protection of Ancient Buildings):  
[http://www.spab.org.uk/downloads/Courses\\_2010/TheSPABU-valueReportFINAL.pdf](http://www.spab.org.uk/downloads/Courses_2010/TheSPABU-valueReportFINAL.pdf)  
One of the conclusions: This study suggests that conventional industry practices are unable to represent accurately the thermal performance of traditionally built walls. Ultimately, this could have negative consequences for historic buildings as the poorer calculated U-values might suggest the need for possibly harmful energy saving interventions that may not be necessary.  
[http://www.spab.org.uk/downloads/SPAB%20Briefing\\_Energy%20efficiency.pdf](http://www.spab.org.uk/downloads/SPAB%20Briefing_Energy%20efficiency.pdf)
4. English Heritage (2007). Energy Performance Certificates for Historic and Traditional Homes.  
English Heritage, Conservation & Research website:  
[www.climatechangeandyourhome.org.uk/live/home\\_information\\_packs.aspx](http://www.climatechangeandyourhome.org.uk/live/home_information_packs.aspx)
5. Building regulations relating to buildings of traditional construction Part L1B of the 2010 Building Regs:  
[http://www.planningportal.gov.uk/uploads/br/BR\\_PDF\\_ADL1B\\_2010.pdf](http://www.planningportal.gov.uk/uploads/br/BR_PDF_ADL1B_2010.pdf). The relevant paras are 3.6 to 3.13 (also reproduced in Part L2B). The most significant addition here is the recognition of "buildings of traditional construction with permeable fabric that both absorbs and readily allows the evaporation of moisture" (3.8c). Whilst not 'exempt', these fall under a category where "special considerations may apply", i.e. "The work should not prejudice the character of the host building or increase the risk of long-term deterioration of the building fabric or fittings" (3.9)
6. Diagnosing Damp: Ralph Burkinshaw and Mike Parrett. RICS Books, 2004 (ISBN 1 84219 097 0)
7. Parrett, M.J., Managing Disrepair in Local Authority Housing: The misdiagnosis of Rising Damp using Electrical Moisture meters (Professional Paper 97009), Institute of Maintenance and Building Management, Farnham, 1997.
8. BRE, Surface Condensation and Mould growth in Traditionally-built dwellings, BRE digest 297 (DG297), British Research Establishment, 1985 (ISBN 0 85125 341 5)
9. Society for Protection of Ancient Buildings (SPAB) Technical Pamphlet No 8 – The Control of Damp in Old Buildings 1992
10. Society for Protection of Ancient Buildings (SPAB) Technical Information Sheet No 4 – The Need for Old Buildings to Breathe 1993

11. English Heritage "Managing damp in older buildings"

**References re: Insulation and upgrading:**

12. BRE, Cutting down on carbon, Improving the energy efficiency of historic buildings (BRE), 2007  
<http://www.helm.org.uk/upload/pdf/BRE-seminar.pdf>
13. MAY N., and RYE C., Responsible Retrofit of Traditional Buildings, Sustainable Traditional Buildings Alliance (SBTA), 2012  
<http://www.building.co.uk/Journals/2012/09/27/x/u/VRESPONSIBLE-RETROFIT.pdf>
14. Presentations to 2011 COTAC Conference "Improving Thermal Performance in Traditional Buildings"  
[http://www.cotac.org.uk/conf\\_2011.php](http://www.cotac.org.uk/conf_2011.php)
15. Warmer Bath : A guide to improving the energy efficiency of traditional homes in the city of Bath, Bath Preservation Trust and the Centre for Sustainable Energy, 2011 (BPT, CSE)  
[http://www.cse.org.uk/downloads/file/warmer\\_bath\\_june2011.pdf](http://www.cse.org.uk/downloads/file/warmer_bath_june2011.pdf)
16. And here are some a useful links to English Heritage publications on windows that you may find interesting:  
<http://www.english-heritage.org.uk/publications/traditional-windows-care-repair-upgrading/traditional-windows.pdf>  
<https://www.english-heritage.org.uk/publications/thermal-performance-traditional-windows/thermal-performance-traditional-windows.pdf>
17. Building Regulations 2010 - Conservation of Fuel and Power, Approved Document LB1. Conservation of fuel and power in existing dwellings.
18. Surveying Buildings by Malcolm Hollis (5<sup>th</sup> edition). Published by the Royal Institution of Chartered Surveyors (RICS). ISBN 1-84219-192-6
19. Peter Ward – [www.heritage-house.org](http://www.heritage-house.org)

**Suppliers:**

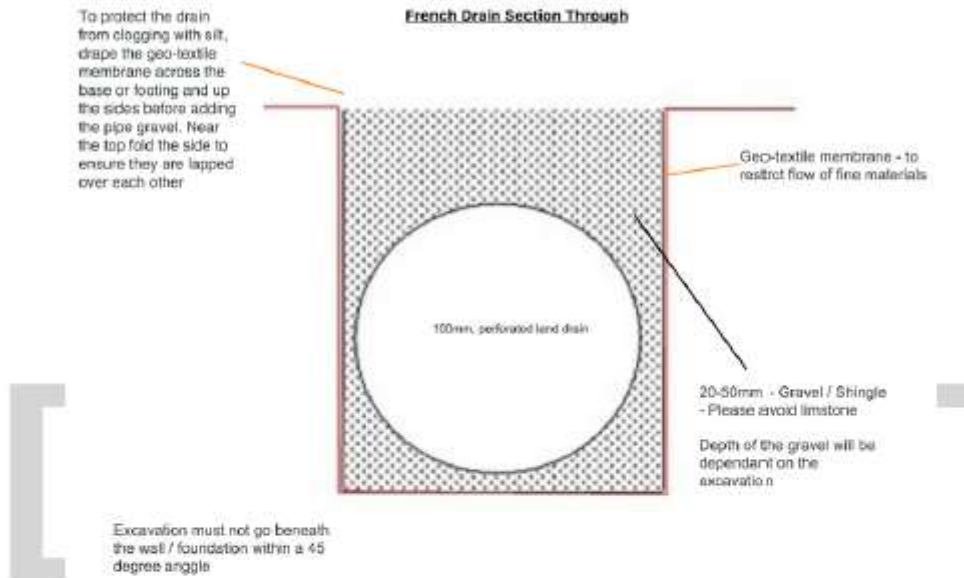
20. <http://www.marleyalutec.co.uk/catalogue/3/traditional-systems.html> <http://www.alumasrainwater.co.uk/aluminium-gutter-systems/heritage/2/d2.1> <http://www.vapourflow.com/store/vapour-vent/> <http://www.rhldirect.com/>
21. <http://oricalcum.uk/pages/how-to-videos> (external joinery – linseed painting) <http://oricalcum.uk/pages/about-linseed-paint> (explains all about linseed paint – great video) <http://earthbornpaints.co.uk/product/claypaint/> (internal paints over lime plaster) <http://sheepwoolinsulation.ie/> (most modern insulation encourages condensation – this brand of sheepwool is pure wool. Other brands available in the UK do NOT compare in quality with the Irish product, which is delivered in the UK cheaper than domestic brands!) If you use them, mention us as the source – again, it should work out cheaper if you do!
22. <http://www.lime.org.uk/courses/> (Ty Mawr lime – courses and products – general info about lime) <http://www.castironairbricks.co.uk/> (Cast iron air bricks and ventcovers – brilliant site!)



### **Appendix C   French Drain Detail**

To install a French drain below the DPC, this will enable water to drain away from the property. Some key points and a section through are detailed below:

1. The drain must have a "fall" around 6mm per metre
2. The 100-150mm perforated land drain must discharge into a storm drain as if left to drain within the ground moisture would just build up
3. A French drain will work more efficiently within a clay soil trench as if the ground is loose fill the water would just seep through the drain saturating the surrounding ground and walls



\*\*\*\*\* & \*\*\*\*\*  
**PROPERTY MAINTENANCE LTD**

- Specialists in woodworm and dry rot control
- Rising Damp control
- Condensation control
- Wall tie replacement
- Basement and loft conversions
- Bathroom and wet room installers
- All aspects of lead work
- Re skims, Re wires, Central Heating
- All aspects of building work undertaken
- Built up felt roofs
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- All aspects of roofing and roof repairs undertaken
- Natural slate specialists
- Full competitive prices
- Experienced craftsmen

Our Ref AH/MVP/1420

**Address of property:**

\*\*\*\*\*  
Sheffield  
S7

**Customers address:**

\*\*\*\*\*  
Sheffield  
\*\*\*\*\*

**Customer:** \*\*\*\*\*

**Contact No:** \*\*\*\*\*

**E mail:** \*\*\*\*\*

**Date of inquiry:** 16<sup>th</sup> May 2011

**Date of inspection:** 19<sup>th</sup> May 2011

**Date of report:** 22<sup>nd</sup> May 2011

**Weather:** It was dry and sunny when the inspection was carried out.

**Instructions:** Damp and timber report. Please contact \*\*\*\*\* **ASAP** if the list of instructions is not correct.

**Property Brick / Stone:** Brick

**Solid walls:** YES

**Cavity walls:** YES

**Rubble filled walls:** NO

**Detached:** NO

**Mid terrace:** YES

**Semi-detached:** NO

**Property occupied at time of inspection:** UN-OCCUPIED.

**Property furnished at time of inspection:** UN-FURNISHED

**Restrictions:** Fitted floor coverings, fitted units and timber claddings to selective walls.

[www.\\*\\*\\*\\*.co.uk](http://www.****.co.uk)

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TEL: \*\*\*\*\* MOBILE: \*\*\*\*\* EMAIL: \*\*\*\*\*@yahoo.co.uk

DIRECTOR: \*\*\*\*\*

Registered in England and Wales No: \*\*\*\*\* Registered office: \*\*\*\*\*





\*\*\*\*\* & \*\*\*\*\*

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Dear Sir/madam,

Thank you for your kind enquiry further to my recent inspection at the above property in accordance with your specific instructions I report as follows;

### Ground floor Damp

Evidence of an existing damp proof course was noted within some ground floor walls. On testing ground floor walls with a protimeter moisture meter testing device higher than normal moisture readings were obtained within the all ground floor walls within the kitchen, the rear dining room outer wall, the rear dining room dividing wall to the kitchen, a 1 metre return to the passage wall adjacent to the rear dining room outer wall, left hand side of the chimney breast within the rear dining room, the front living room outer wall incorporating the bay area, a 1 metre return to the passage wall, right hand side of the chimney breast within the living room.

### First floor Damp

On testing first floor walls with a protimeter moisture meter testing device higher than normal moisture readings were obtained within rear bedroom outer wall floor to ceiling to the left hand side of the window.

Approximately 30 square metres of damp salt contaminated plaster was noted within these walls.

### Ground floor timbers

An inspection was carried out to the sub floor timbers within the cellar area. Where access was gained wet rot and timber decay was noted within 3 timber joist ends. 1 timber joist bearing on to the passage wall and 2 timber joists bearing on to the party wall to the right hand side of the chimney breast within the living room.

Inadequate sub floor ventilation was noted.

An inspection was carried out to the front and rear guttering. Wet rot was noted to the front bay window and rear kitchen off shot timber guttering causing water to cascade down the front and back wall. This will be contributing to the damp on the internal walls.

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\*\*\*\*\* \* \*\*\*\*\*

## PROPERTY MAINTENANCE LTD

---

I recommend for the following work to be carried out.

Remove the rear kitchen units, sink and cooker to gain access to the necessary walls.

Remove the skirting boards and radiators to the necessary walls and hack off the defective wall plaster to the aforementioned walls to a height of 1.2 metres and 2 metres on the kitchen party wall. Apply a TRITON plaster base cavity drain tanking membrane system, re plaster and skim. Insert a triton tri jell chemical injection horizontal damp proof course incorporating all necessary verticals to the aforementioned walls and all external outer walls. Re install the existing radiators and skirting board.

Re install the kitchen unit's cooker and sink if required.

If the skirting board contains wet rot or timber decay and is in need of replacing a charge of £8.00 per meter will be added to the final cost that is shown below this does include supplying and installation of the skirting board.

Cut out the defective timber joists within the cellar area 3 in total. Replace using new pre-treated timber joists loose wrapped in DPC membrane to isolate from the brick work. Treat and pack the remaining timbers with a combined insecticide.

Install 3 additional air bricks to improve the sub floor ventilation.

Take down the front bay window timber guttering and rear kitchen timber gutter and replace with new pre-treated 5" timber guttering prime and paint.

Remove 150mm of rendering to the front bay to prevent bridging of the new DPC barrier.

### COST

Remove and dispose of the kitchen units if required- £100

Install a chemical horizontal damp proof course to the aforementioned walls- £480

Tanking and plastering approximately 30 square metres £1800

New timber guttering to the bay window and rear kitchen off shot- £390

Timber repairs and treatments to the cellar area- £300

Install 3 additional air bricks- £120

Remove 150mm of rendering to the front bay- £100

Skip- £150

I trust this meets with your requirements but if I can be of any further assistance please do not hesitate to contact me on \*\*\*\*\*

Yours Faithfully  
\*\*\*\*\*

We have not inspected woodwork or other parts of the structure, which are covered, unexposed or inaccessible; we are therefore unable to report that such parts of the property are free of rot, beetle or other defects.

[www.\\*\\*\\*\\*.co.uk](http://www.****.co.uk)

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DIRECTOR: \*\*\*\*\*

Registered in England and Wales No: \*\*\*\*\* Registered office: \*\*\*\*\*

\*\*\*\*\* \* \*\*\*\*\*

## PROPERTY MAINTENANCE LTD

TO ACCEPT THIS QUOTATION PLEASE CONTACT:

Phone office: \*\*\*\*\*

Mobile \*\* \*\*\*\*\*

Email: \*\*\*\*\*@yahoo.co.uk

Web: [www.hlpm.co.uk](http://www.hlpm.co.uk)

PLEASE NOTE PAYMENT IS REQUESTED ON COMPLETION OF WORKS, UNLESS OTHERWISE ARRANGED WITH THE COMPANY.

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ALL DPC WORK IS FULLY WRITTEN 30 YEARS GUARANTEED BUILDING SOCIETY, PCA, BWPDA, TUG AND TRITON APPROVED CARRIED OUT IN ACCORDANCE WITH THE FEDERATION OF MASTER BUILDERS REGISTERED NUMBER 3773. BWPDA NUMBER 0088.

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TEL: \*\*\*\*\* MOBILE: \*\*\*\*\* EMAIL: \*\*\*\*\*@yahoo.co.uk

DIRECTOR: \*\*\*\*\*

Registered in England and Wales No: \*\*\*\*\* Registered office: \*\*\*\*\*



## PARTICIPANT CONSENT FORM

**TITLE OF RESEARCH STUDY: Is there confusion within surveying profession about the existence of rising damp and is the correct advice being given to homeowners?**

*Please answer the following questions by ticking the response that applies*


- |  | YES                      | NO                       |
|--|--------------------------|--------------------------|
| 1. I have read the Information Sheet for this study and have had details of the study explained to me.   | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. My questions about the study have been answered to my satisfaction and I understand that I may ask further questions at any point either before, during or after the interview.   | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. I understand that I am free to withdraw from the study within the time limits outlined in the Information Sheet, without giving a reason for my withdrawal or to decline to answer any particular questions in the study without any consequences to my future treatment by the researcher. | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. I agree to provide information to the researchers under the conditions of confidentiality set out in the Information Sheet.   | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. I wish to participate in the study under the conditions set out in the Information Sheet.   | <input type="checkbox"/> | <input type="checkbox"/> |

**Participant's Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Participant's Name (Printed):** \_\_\_\_\_

**Contact details:** \_\_\_\_\_

**Researcher's Name (Printed):** Simon Hollis

**Researcher's Signature:** 

**Researcher's contact details:**

Simon Hollis  
156 Murray Road, Sheffield, S11 7GH  
Mobile Telephone: 07947 255 270  
Email: simon@simonhollis.com

**Please keep your copy of the consent form and the information sheet together.**

**PARTICIPANT INFORMATION SHEET**

1. Title of the research:

Is there confusion in the surveying profession about rising damp and is the correct long-term advice being given to homeowners?

2. Legal basis for research for studies: The University undertakes research as part of its function for the community under its legal status. Data protection allows us to use personal data for research with appropriate safeguards in place under the legal basis of public tasks that are in the public interest. A full statement of your rights can be found at <https://www.shu.ac.uk/research/ethics-integrity-and-practice>. However, all University research is reviewed to ensure that participants are treated appropriately and their rights respected.

3. Introduction and purpose of research:

As a Chartered Surveyor, I have long been asked by family members and friends to inspect residential properties and provide my opinion on residential property surveys.

One common theme, especially since the introduction of the new format RICS Home Buyers Report is that surveyors note rising damp/high damp meter readings (on an electronic moisture meter) and recommend further investigation by a damp specialist. Homeowners and purchasers can react in shock to this advice and commission a number of different treatments in the hope of remedying this diagnosis.

In contrast, some surveyors are of the opinion that rising damp is a myth and that with the correct diagnosis skills, a different conclusion/solution can be reached and better effective long-term advice can be provided.



I feel that this is a sometimes-controversial subject that warrants further investigation in order for the profession to be able to provide the correct advice to both its members and to homeowners.

4. Why have you asked me to take part?

You have been asked to voluntarily take part in this research because you have had a survey on your home that has identified rising damp or recommended further investigation into damp issues.

5. What will I be required to do?

With your consent, the researcher will read a copy of the survey you had prepared when you purchased your home. The researcher will then discuss this with you during the interview.

It would also be greatly beneficial to the researcher if you would show them any areas of your home where you have had any damp treatment.

6. Where will this take place?

The interview will take place either at the interviewees home or alternative arrangements can be made at their convenience.

7. How often will I have to take part, and for how long?

It is not envisaged that there will be more than one interview lasting around one hour. If necessary, further questions can be asked via telephone or email to suit the interviewee.

8. Are there any possible risks or disadvantages in taking part?

Depending on the outcome of my research, you may feel that you have been incorrectly advised when you purchased your home. The researcher will not be providing any advice or recommendations, to the interviewee.

9. What are the possible benefits of taking part?

You may gain a better understanding about the survey you have had commissioned on your home. You may also gain a better understanding of any specialist products you have had installed at your home.

There is also the secondary benefit that you will be helping a student with their studies.

10. When will I have the opportunity to discuss my participation?

You will have the opportunity to discuss your participation with the researcher before, during or after the interview. The researcher's contact details are at the end of this form. If you would like to discuss the research with Sheffield Hallam University, their contact details are also at the end of this form.

11. Will anyone be able to connect me with what is recorded and reported?

Unless you are happy to be named in the research, interviewees will be referred to as Participant 1, 2, 3 etc.

12. Who will be responsible for all of the information when this study is over?

The researcher will maintain full responsibility for all of the information from the point of capture to the point of destruction.

13. Who will have access to it?

The interview recordings and transcripts will only be accessible by the researcher and their supervisor if requested. Files will be stored on a password protected computer.

14. What will happen to the information when this study is over?

Information will be held until marks for the project have been finalized. Once the marks have been finalized, all information will be disposed of. Soft information will be wiped and hard copies burned.

15. How will you use what you find out?

The information that I gain from the participant interviews will be analysed and written up to form part of my research.

16. How long is the whole study likely to last?

The study will begin in March 2019 and completion is planned for the end of August 2019.

17. How can I find out about the results of the study?

Details of who to contact if you have any concerns after the study are given below:

Researcher Details:

Simon Hollis

156 Murray Road

Sheffield

S11 7GH

Mobile: 07947 255 270

Email: [simon@simonhollis.com](mailto:simon@simonhollis.com)

Sheffield Hallam University Details:

You should contact the Data Protection Officer if:

- you have a query about how your data is used by the University
- you would like to report a data security breach (e.g. if you think your personal data has been lost or disclosed inappropriately)
- you would like to complain about how the University has used your personal data

[dpo@shu.ac.uk](mailto:dpo@shu.ac.uk)

You should contact the Head of Research Ethics (Professor Ann Macaskill) if

- you have concerns with how the research was undertaken or how you were treated

[a.macaskill@shu.ac.uk](mailto:a.macaskill@shu.ac.uk)

Postal address: Sheffield Hallam University, Howard Street, Sheffield S1 1WBT

Telephone: 0114 225 5555

## Appendix G – Example Homeowner Questions

Items of a confidential nature have been removed and denoted by a \*.

1. Before instructing a survey on your home, did you know or were you made aware of the different types of survey available to you?
2. What sort of survey did you have when you purchased your home?
3. If applicable, was that the survey that the lending institution said you had to have as a minimum or did you 'upgrade' your survey, e.g. from a valuation report to a Home Buyers Report or from a HBR to a building survey?
4. When you received the survey, did you expect the surveyor to get to the bottom of any issues found or did you expect the surveyor to recommend further specialist reports needed to be instructed by yourself?
5. Talking specifically with regards to the 'main walls' area of your survey, I note that your surveyor has noted that the walls are of cavity construction. Your surveyor has recommended a cavity wall tie specialist checks the condition of the cavity wall ties. Did you take any further action on this point?

Your surveyor has also advised that there is repointing works to be undertaken to the front of the house. I can see that you have had the walls to the first floor repointed. Did you take any further advice on this after the survey? Also, was there a reason that you only had the first floor done (i.e not the ground floor)?

(Noted in F3 – Walls and Partitions)

Your surveyor has taken moisture meter readings above the skirting boards and noted localised high moisture readings.

Considering the age of the property were you expecting there to be any problems with damp?



The report mentions the presence of a chemical injection damp proof course and your surveyor recommends that the guarantee certificate is obtained for this. Do you know if this was obtained before you purchased the house? If it was obtained, would this have given you confidence that the property would be 'damp-free' for the foreseeable future?

Possibly contradicting the above, your surveyor has advised that either the damp proof course or re-plastering scheme has failed or was to an inadequate specification to start with.

The surveyor has then recommended to get a 'further report from a damp specialist' if the problems cannot be remedied under any existing guarantee. Did you commission a further report from a damp specialist? If so, what was the outcome of this report and did you take any recommended remedial works? If so, do you know if these have been effective?

Your surveyor has noted that the external ground levels are too high in relation to the damp proof course and advised that these should be reduced. Did you understand what this meant and did you take any action on this point?

Your surveyor has also noted that the right-hand side brick boundary wall is breaching the damp proof course, but has noted that an injection damp proof course has been provided around this. Again, did you understand what this meant and did it give rise for any concern?

With regards to the high moisture readings in the rear righthand wall of the kitchen – the survey recommends a trial and error approach - did you take any further action on this point?

The previous owners of the property installed and then removed a flower bed from this location, which I believe was the cause of penetrating damp to the area.

6. Do you have any further thoughts on the survey report and do you think that it contained the information you required to make an informed decision on the survey?
7. Thank you for sending over your report from \*\*\*\*\* (Deleted so that provider remains anonymous). Did you have this done following on from the recommendation in your survey, or did a defect start to materialise that you thought needed further investigation?
8. How did you find about \*\*\*\*\* and the services they offer?
9. Did you have more than one company out to offer an opinion and quote on the defect?
10. Now, looking specifically at the report that \*\*\*\*\* have provided you with, did you compare this to the survey you had done when you purchased the house?
11. \*\*\*\*\* have advised you that there is already evidence of a chemical injection damp proof course in the walls. Did you look into this in any more detail at all?
12. They have also advised that the external ground level is at least 150mm below the damp proof course level on all elevations. This information is contradictory to the original survey. Were you aware of this?
13. The report advises that there is visual evidence of a damp problem in the walls – could you advise what this looked like and where in the room this was?
14. The report advises that the visual evidence was confirmed by moisture meter readings. Did you see what sort of meter was used? Can you recall if it looked like this (picture of a Protimeter Surveymaster moisture meter)?



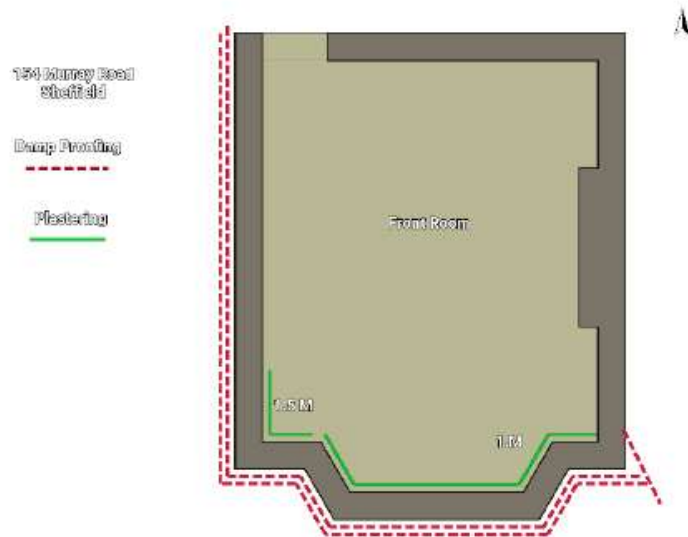
Or this (Protimeter Speedy carbide meter) If it was this option, the surveyor would have had to have used a drill to take a number of samples of the masonry, weighed them and shaken them up in the flask with calcium carbide). Note that in Page ten of their report \*\*\*\*\* advise that they use a carbide meter to take mortar samples).



15. \*\*\*\*\* have recommended installing the ‘\*\*\*\*\* Horizontal Damp Proofing System’ with the ‘\*\*\*\*\* Plastering System’. Do you know if this is the system that you had installed?
  
16. As this is a chemical injection damp proof course, do you recall why \*\*\*\*\* recommended this treatment as it is essentially what you have already installed?
  
17. Did \*\*\*\*\* explain the system to you and how it is supposed to work?

18. The \*\*\*\*\* report only covers your front room. Did you notice any symptoms in the rear of the ground floor, and if so, did \*\*\*\*\* also test these areas?

Appendix - Floor Plan



19. Did you compare the solution that \*\*\*\*\* offer with any other installers?

20. Did you decide to have the works done straight away?

21. Are you happy with the works that you have had done?

22. \*\*\*\*\* offer a 30 year guarantee on their works. Was this guarantee important when selecting the product and provider and are you confident that you can rely on it?

23. Do you have any other comments?

Thank you very much for your time, please let me know if you would like an electronic copy of my dissertation once I have completed it.

## Appendix H – Example Surveyor Questions

Please could you answer the following questions as if you were surveying an Edwardian/Georgian/Victorian traditionally constructed house?

1. Please could you talk me through your inspection process for the main walls of the house, in particular, how you may check for any signs of damp?
2. What instruments/tools do you use for this?
3. Does your inspection differ if you are carrying out a Building Survey compared with a HomeBuyers Report Survey/Survey and Valuation?
4. If you think that there is evidence of damp in a property, what if any further checks would you make? Would you try and diagnose the source of the problem or would you recommend further investigation by a third party?
5. If you would recommend further investigation by a third party, do you have a third party whom you would recommend?
6. If applicable, what investigations would you expect a third party to carry out?
7. If the property you are surveying already has evidence of a damp proof course, would you comment on this in your survey, and if so, what are you likely to comment on?
8. Has the way you have undertaken inspections and written up surveys changed since the RICS brought in the new style of survey report templates in 2009 (ignoring the format changes, more thinking about the text content)?
9. Do you have any thoughts/preferences on this new style of report? Do you prefer it to the previous approach of different surveyors using their own templates?



10. The RICS has said that the new style of report is more modern and generates more business for surveyors. Some surveyors have said that they think that the new style of report encourages less diligent surveyors and those under pressure to do volume work to use template text and thus not fully report on issues unique to the property they are surveying. Do you have any thoughts on this?
11. Do you have any thoughts on rising damp and the different remedial options offered by specialist companies?
12. Do you know roughly how long you have been undertaking residential surveys?
13. Do you know roughly how many residential surveys you have undertaken in your career?
14. Do you have any further comments that you would like to make?

Thank you very much for taking part in the interview, it is very much appreciated.

# Appendix I – Photos of Case Study and Lab Work

## I. Preparation and Drying Out







## II. Set Up







### III. Results













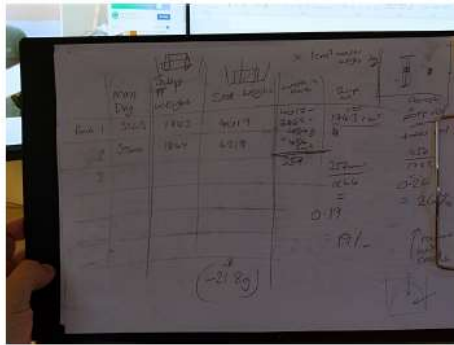






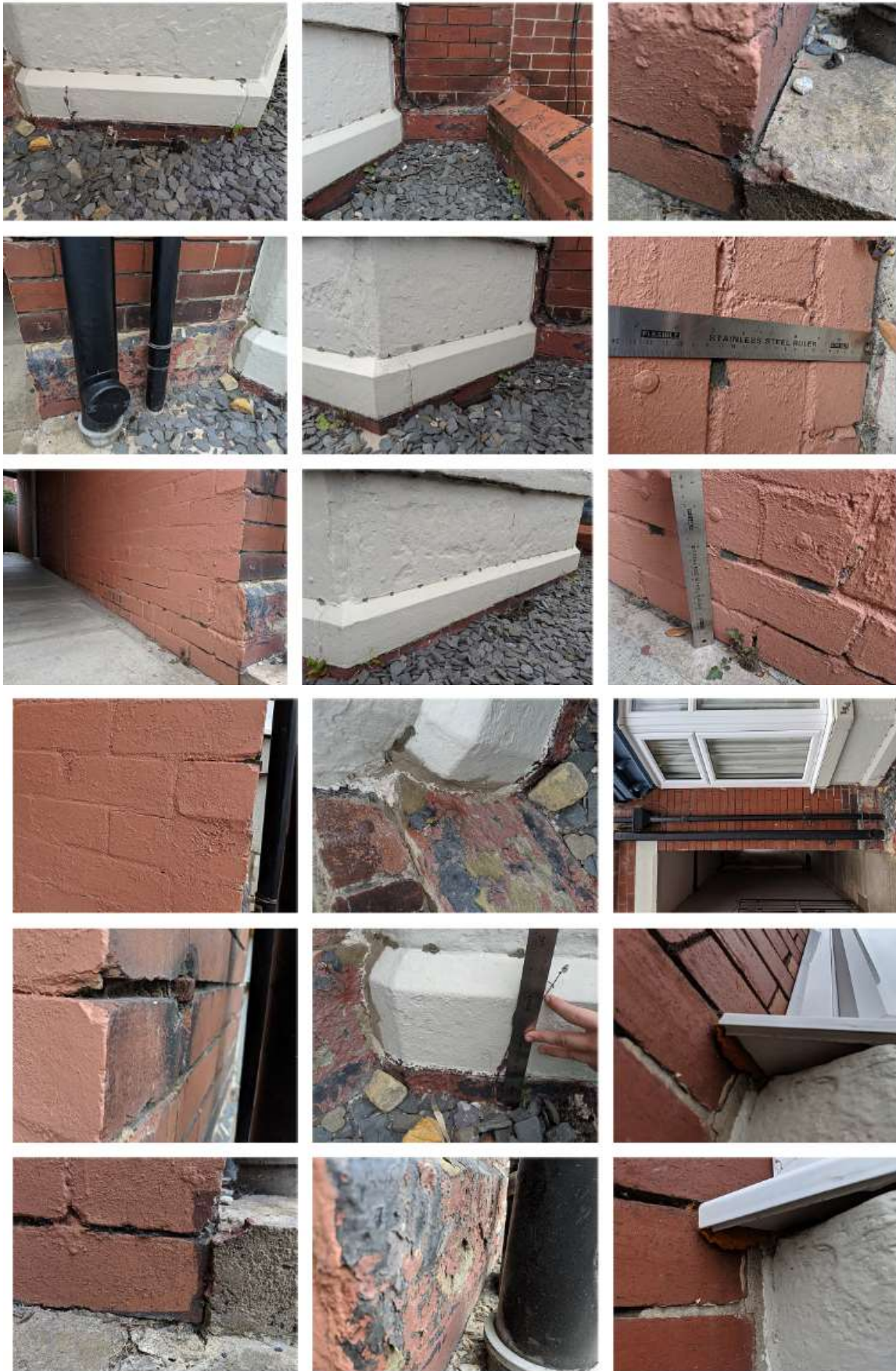
IV. Porosity







V. Case Study One



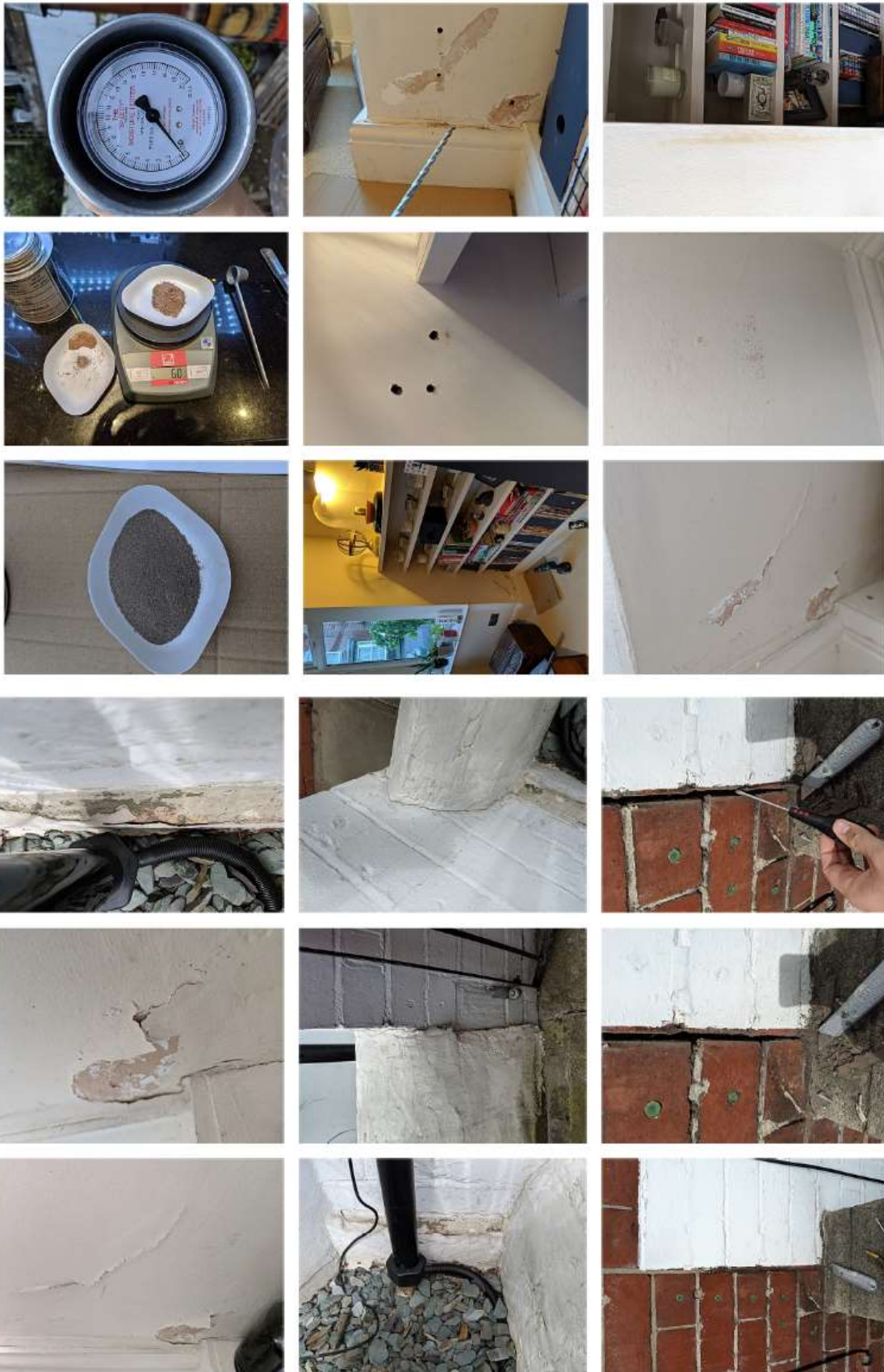




## VI. Case Study Two

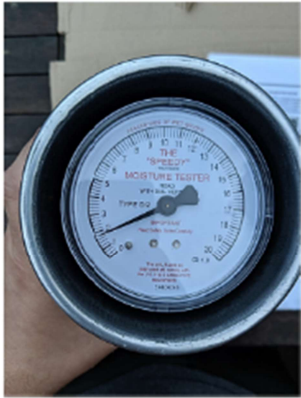


VII. Case Study Three









End.