Example property

London

Part owner's damp report

12 April 2022

CONCLUSION	**3**
RECOMMENDATIONS	**4**
ILLUSTRATIONS	**7**
DATA LOGGERS	**21**
W.H.O. GUIDELINES FOR INDOOR AIR QUALITY	**25**
TIPS TO KEEP PROPERTIES CONDENSATION AND MOULD FREE	**28**

SURVEY OBJECTIVES

Our damp surveys are designed to provide a holistic diagnosis that identifies and deals with causes rather than a focus on symptoms. Symptoms will disappear over time, once damp is stopped at source. We look for risks of dampness, but unless moisture is present, we can't guarantee to identify all risks of future moisture. Our reports:

- identify root cause(s) of major unwanted dampness within the property,
- identify major symptoms of unwanted dampness,
- identify major structural damage caused by dampness,
- recommend actions and estimated costs to stop damp at source and mitigate its effects,
- recognise that treating damp is often a staged approach, treating obvious causes first.

Note neither condensation nor rising damp are causes. They are symptoms.

INDEPENDENCE AND METHODOLOGY

Our only income is through damp survey fees. We are independent of contractors and never profit from remedial work. We do not receive or pay any fees or other inducements. Our motivation is peace of mind and practical, durable solutions. We use an array of equipment to identify the root cause of damp within walls. Our damp surveys follow guidance from "RICS Historic England joint methodology" and support RICS's highest standard, level 3 "Home Survey Standard" (HSS).

During the survey we assess likelihood of rising damp, mainswater leak, penetrating damp, condensation, timber rot and woodworm. We profile the damp patches and consider the likely sources of dampness and test ventilation against building regulations requirements. We consider changes to the property and factors just before the first sighting of damp.

UNDERSTANDING DAMP

For survey purposes, damp is defined as unwanted water. Water brings life. We need it. Unfortunately, fungus and insects also thrive in water. While a damp wall can cause decorative spoiling, it is not moisture, but the life it brings that causes the greatest concern in the home environment. FACT: vapour causes 85% of residential damp problems.

SURVEYOR'S DECLARATION AND CONCLUSION

I confirm that I inspected the property on 12 April 2022. I conclude that condensation on the damp proof course in the sub-floor void, in addition there are some hygroscopic salts on the chimney breast and probable breach of the flashing around the chimney breast.. All buildings can be exposed to unvented vapour and external dampness to some degree. You will mitigate the risk of damp if you follow all our recommendations. This report is intended to be read in full with links off it. Observations and opinions must not be taken in isolation. Like any building, you need to be aware of the risks of damp arising in the future and plan a programme of prevention and maintenance accordingly.

RISK OF RISING DAMP *i.e. groundwater (water under the water-table)*

Flood risk: low risk.
https://flood-warning-information.service.gov.uk/long-term-flood-risk/postcode
Sub-soil rocks: Rocks with essentially no groundwater.
http://mapapps2.bgs.ac.uk/geoindex/home.html?layer=BGSHydroMap
Therefore risk of rising damp is a remote possibility, see a good explanation by
Dr Robyn Pender of Historic England https://youtu.be/Jo8oF9ubvtI

REASONING

the kitchen drain was blocked, the edge around the drain has a crack causing water to enter the sub-floor void. The rear section of the building has had two airbricks removed, the only remaining airbrick is sealed off. It is likely that water vapour has condensed on the damp proof course ("DPC") causing rising damp like symptoms in the rear room. The presence of rot on the rear timber doors increases the risk of rot in the sub-floor void.

SAVINGS BY TAKING A ROOT CAUSE APPROACH

By taking a root cause approach, rather than a focus on blocking the symptoms of damp the savings are likely to be around £10,000. This contrasts with typical damp proofing contractor recommendations such as chemical treatment for rising damp and untargeted ventilation, such as PIV systems.

Simon Hichens BSc Chemistry ASSI Institute of Specialist Surveyors & Engineers)
RICS Qualified Expert Witness (Royal Institute of Chartered Surveyors)
ABBE Certificated Surveyor of Timber & Dampness in Buildings
PCA Certificated Surveyor of Dampness in Buildings (Property Care Association)
ICAEW and Property Mark Qualifications
Report 29 April 2022

Damp Surveys Ltd, 119 Longton Avenue London SE26 6RF
Reg. 10977488 (England & Wales)
Member of the Society for the Protection of Ancient Buildings (SPAB)

RECOMMENDED REMEDIAL ACTIONS

Remedial actions necessary to keep the property dry and mould free	
Instruct a general builder to rake out and fill render cracks and repaint flaking or cracked masonry paint - an external acrylic caulk for small gaps, similar material to the original render for larger gaps (>3mm). The paint should be as impermeable as any coating between it and an absorbent wall it i.e. impermeable if painted on render or impermeable paint. Normal Sandtex or Dulux exterior paint is semi-permeable. Zinsser market an impermeable satin finish: “Zinsser Perma-White Exterior”.	£1,000
It is likely that water has been entering into the sub-floor from the blocked front drain. The gulley is damaged and needs repair to stop water bypassing the drain. There is a good chance of drain damage under the house (as I had at my property). Consider instructing a CCTV drains survey (~£400). TIP: monitor sub-floor humidity with a hygrometer probe under the damp wall (which I left in place during the survey). A probe can be pushed through cracks in floorboards or by discretely drilling out a hole. The sub-floor relative humidity will fluctuate. If it remains above 85%RH, then consider increasing sub-floor ventilation by unblocking current airbricks and possibly enlarging or adding another (to the front and or rear). If high humidity continous, consider installing a mechanical, inline sub-floor extractor fan, or two such as the MORI WMF Weatherproof Multi- Functional Sub-Floor Ventilation by HomeVent (a division of Elta), £420 for two plus about £300 installation costs. There is a possibility that the DPC has been bridged by builders rubble in the sub-floor void, in front of the hearth and surrounding the chimney breast, remove any oversite and check for rot in the sub-floor void.	£400
Replace the rotten reception doors, ensuring that all rot is removed, check in the sub-floor below the door.	£1,000
TIP: speed wall drying further. Depending on external temperature, either keep windows open, or close windows, put heat on if required to around 16°C and considering using a dehumidifier - see below.	£50
TIP: monitor dampness with simple damp meter, logging at the same time and position every week.	£10
TIP: monitor relative humidity and temperature against wall or ceiling, to see effects of improvements, such as ORIA Wireless Thermometer Hygrometer (20m (2 Packs)) - see surveyor.tips/datalogger - already in place	£20
TIP: cook with tops on pots and pans to reduce production of vapour from cooking by 80%.	
TIP: keep at least a small amount of heat late at night, when it is cold outside. Reduce clutter around external walls vulnerable to condensation to increase airflow.	
TIP: dry clothes outside or in vented room with door closed (which could a bathroom with the extractor running).	
TIP: keep bathroom door closed and window open, until humidity from shower has subsided.	
TIP: property management. Observe and photo or film around the property during a rainstorm to see where water flows, making sure water flows/drains away from the building.	
Remedial actions – estimate of total costs	**£**2,480

Effectively you can solve all your damp and mould issues without spending much more money. However, consider further actions below.

Optimal actions to improve the home environment	
TIP: install an externally ducted kitchen extractor fan with rigid ducting, either above hob, or light switch operated. Hoover HGM600X (£149) is Which! Best buy.	£300
Consider installing a bathroom extractor. The main cost of installing a bathroom extractor fan is the electrical work, not the fan. So you might as well buy the best. Two types to consider 1) 30 minute timer with fast airflow and backflow shutter, I suggest Xpelair C4TSR 100mm axial bathroom extractor (https://www.screwfix.com/p/xpelair-c4tsr-100mm-axial-bathroom-extractor-fan-with-timer-white-220-240v - but make sure to fit the backflow shutter so that both flaps open and extend timer to 30 minutes (from the default 1min). Or 2) A continuous flow extractor fan such as the Elta Mori DMEV II T Continuous Running Extractor Fan (search online). The thermal cost of continually extracting air, a timer fan, is an estimated £75 per year. PIV systems are expensive to buy and run, thermally inefficient and need bathroom and kitchen fans anyway, and MVHR (mechanical vent with heat recovery) are even more costly to install and run, difficult to set up correctly and are better suited to large, hard to control buildings such as hotels and offices.	£300
TIP: anti-condensation paint. Consider painting anti-condensation (e.g. DryZone by Safeguard on Amazon 5L £53.70) or anti-mould paint onto walls vulnerable to condensation or mould (top coat only). TIP: remove mould. Consider sanding down mould and removing it with either bleach or anti-mould foam.	£56
TIP: dehumidifier. The energy used in a dehumidifier all results in heat with a bonus from heat released when turning a gas into liquid, therefore it is energy efficient. See Which! Guide; https://www.which.co.uk/reviews/dehumidifiers/article/how-to-buy-the-best-dehumidifier-ay5gu4q77WQN such as Pro Breeze 30L Smart Dehumidifier (PB-15-UK); £219 ideally buy one with a continuous function draining into a sink or drain. If you keep a different temperature zone in the property, leave a property vacant or dry clothes internally, then use a dehumidifier set to 65%RH, removing water daily or ideally draining water continuously. The running cost of a 250W (normal) dehumidifier is 7p per hour or £11.76 at 1 April '22 tariffs. Electricity is 4 times more expensive than gas, but much comes from renewables, especially when it is sunny or windy, and is less likely to fuel Putin's war.	£179
TIP: clothes dryers. Consider installing an externally vented tumble dryer. TIP: drying racks. Consider buying a drying rack made for a bathroom, with a vent on at least until clothes are 90% dry.	£300
Hygroscopic salts act like grease stains. They are benign, cause no damage or mould, but are unsightly, especially in summer, and cause problems selling or renting a property. The best solution is to cover the salts with a significant overlap of at least 300mm. You should reduce the humidity with improved ventilation, and dry walls with a fan. There are three alternative methods; 1) The simplest, cheapest, best used with small areas, is Zinsser Cover Stain, a solvent-based, primer-sealer. For each patch, it takes about 1 hour and costs around £10 plus any labour if required, the great thing with Zinsser is it is easy strip off and reapply. 2) Sempatap or Wallrock lining paper, see https://www.youtube.com/watch?v=_R1B44fGttE, this creates a slight non-porous "cavity" separating the lining paper from the wall. It takes about 1/2 day and costs around £150 - £400. 3) Install thermal insulating plasterboard, with a vapour barrier from floor to	£40

ceiling. It takes about 1 day and costs about £250 per linear meter. I would always start with the Zinsser, but budget for thermal plasterboard.	
Consider installing insulation.Internal insulation. The choices for internal are moisture active insulation, such as wood fibre or lower cost thermal insulating plasterboards, which have vapour barrier and therefore can cause interstitial condensation, especially where there is a brick wall expose to rain. Consider the sun and prevailing weather affecting each wall when choosing what form of insulation to choose for each wall. There is a risk of condensation forming behind the vapour barrier, therefore you should: 1) Keep a 10 - 20mm gap between the insulation and floor (hidden by skirting board). 2) You should install a humidity sensor under the insulation to measure humidity, if it is high, then consider opening up the skirting to let out trapped vapour / moisture in the unlikely event that it causes rot (less likely on the North side). External wall insulation (EWI) system. This involves the installation of an insulating layer to the external fabric, covered by render, which may not be aesthetically pleasure or be given planning permission. Any render should have cracks filled. The final render is less vulnerable to expansion and contraction than normal render, but could eventually crack itself. There are risks, see: https://www.property-care.org/professionals/webinars/green-homes-grant-retrofit/ . The best bang for your buck could come from targeted insulation, such as a double layer of overlapping loft insulation insulated deep into eaves, insulation behind radiators on external walls, extract insulation around hot water tanks and pipes, insulated coving and underfloor insulation. Consider draught-proofing, but be aware of the need for targeted ventilation. As a country we are all going to have play our part to reduce energy consumption if we are to reach net zero by 2050. The Government may offer grants, see https://www.which.co.uk/reviews/home-grants/article/home-grants/insulation-grants-aGAZv8p9hGkY. There is a risk many poorly qualified tradesmen will offer low quality solutions. Always have multiple quotes, look at past work and check online reviews. The sum stated is inexact, depends on many factors and only there to inspire consideration. The Government may offer grants, see https://www.which.co.uk/reviews/home- grants/article/home-grants/insulation-grants-aGAZv8p9hGkY. There is a risk many poorly qualified tradesmen will offer low quality solutions. Always have multiple quotes, look at past work and check online reviews. The sum stated is inexact, but there to inspire you.	£2,000
I would decommission and remove the water tanks and increase loft insulation £1,000 considerably, making sure that it is even and pushed deep into the eaves.	£1,000
While it is possible that the lead flashing is causing ingress, it is just as likely that the water in the upstairs chimney breast results from interstitial condensation, so if you are doing some roof work and or have scaffolding consider replacing the lead flashing around the rear chimney stack and add cowls. If not then removing the tank will reduce the risk of interstitial condensation. Check the vents in the loft (they appeared to be OK), by monitoring the humidity in the loft, such as with data loggers (mainly a winter issue).	£500
Optimal actions – estimate of optional costs	**£**4,675

This estimate is based on approximate time, costs and competence to complete repairs. It is not a quote for work. We are independent. A general builder can complete most work. CheckaTrade.com, trustatrader.com and trustedtraders.which.co.uk are good sources of general builders. Once the recommended remedial actions are completed and the walls allowed to dry, dampness will not have a material impact on the value of the property.
It is the client's responsibility to check that a contractor has sufficient insurance and competence to undertake any work that we recommend.

ILLUSTRATIONS

There are many damp issues around the house. There is a brown stain on the right-hand rear reception wall.

The brown discolouration like a teabag stain is a sign of water flowing through building material. In this case it is caused by rainwater and referred to as penetrating damp.

The wall was damp, as determined by a Protimeter radio frequency damp meter.

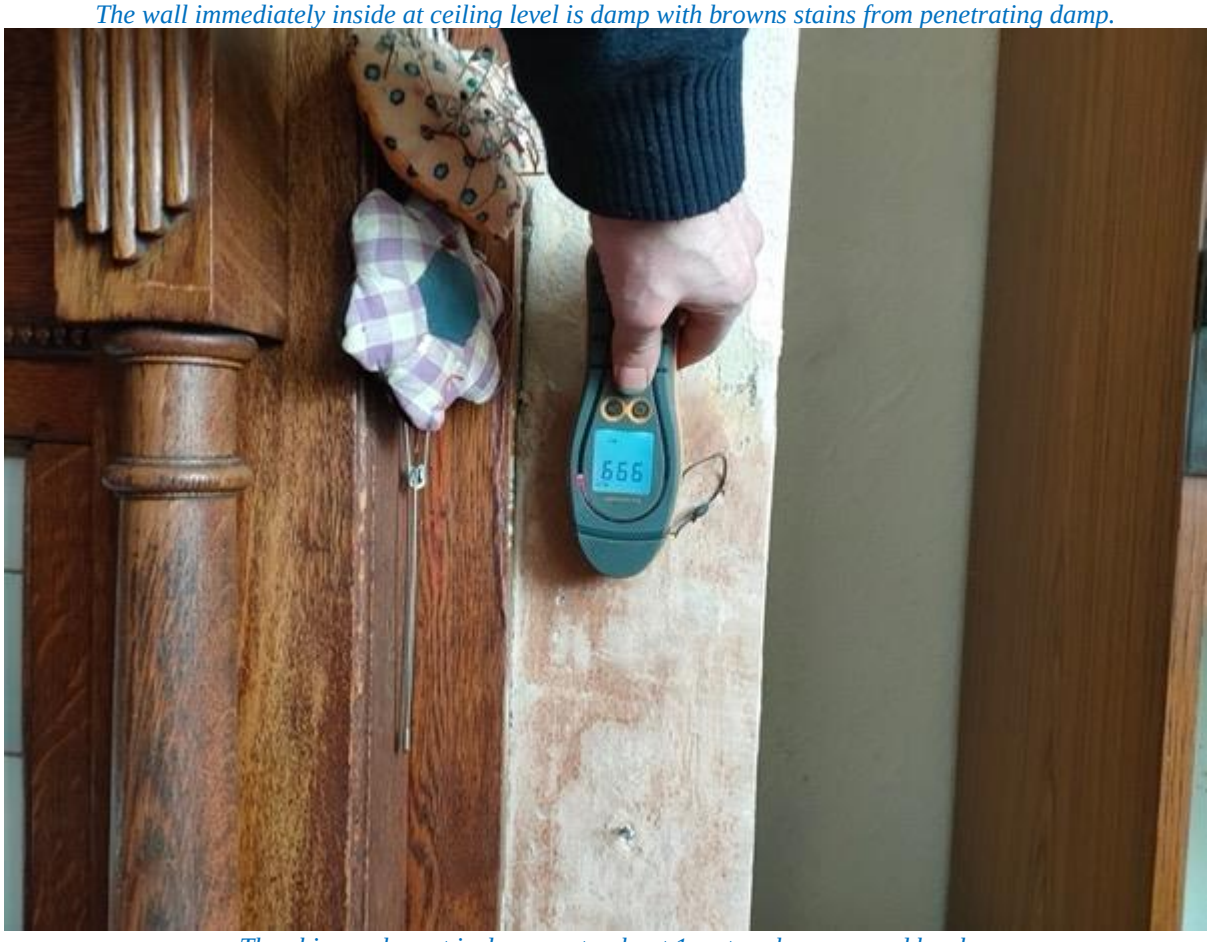
The damp meter's measurement limit is 999REL, below 300REL is consider dry. 999REL indicates water absorbed at depth. High readings illustrate the extent and profile of dampness, and are used to help pinpoint the source of moisture surveyor.tips/profile.

Outside there are render cracks. Cracks suck in water like capillaries.

Render expands in the sun and contracts at night. This often causes cracking. Water flows down an impermeable surface. All else being equal, a horizontal crack will draw in more water than a vertical crack. Water cannot evaporate out through the render so penetrates inside. Sometimes the crack merely dampens the outside brick causing heat loss, increasing risk of condensation. However, clearly water is penetrating through this wall.

Render cracks are visible on the left-hand rear reception wall.

The wall immediately inside at ceiling level is damp with browns stains from penetrating damp.



The chimney breast is damp up to about 1 metre above ground level.

It is possible that the damp in the chimney breast is connected to the render cracks. However, chimney breasts that are not used for fires, are at increased risk of dampness, as there tends to be increased heat loss from the flue and the hearth is supported by bricks, increasing the surface area able to absorb water vapour from the sub-floor void. There may also be some oversite causing the DPC to be bridged in the sub-floor void.

The kitchen drain was blocked. The gulley is cracked allowing the overflow to pour into the sub-floor void.

I would have a CCTV drain survey of all waste and rainwater drains.

The back addition needs its own sub-floor ventilation in case moisture enters the sub-floor void.

The only airbrick to the back addition has been partially blocked, it should be opened up. Considering the kitchen has been out of use for a year, it is likely only limited water has entered the sub-floor void in that time. That it has dried and that the damp is mainly residual moisture.

I pushed a hygrometer between floorboards. I am not sure it is sufficiently in the void to measure humidity.

The relative humidity in the sub-floor void should be below 75%RH. It can fluctuate when it is cold or raining outside. I suspect that moisture has entered the sub-floor void and that the limited sub-floor ventilation has resulted in condensation forming on the DPC, this can result in rising damp like symptoms. It can also result in rot, which given rot elsewhere, increases risk of rot in the sub-floor void. You should inspect under the timber floor.

The rear doors have been replaced with double glazing. A sub-floor vent has been blocked. There is a crack.

The left-hand rear reception has double glazing and insufficient neighbouring kitchen. Double glazing reduces airflow from timber windows and the dehumidifying “benefit” of single glazing. While the house has been unoccupied for a year, the penetrating damp from render cracks, heat loss from cold walls and minimal ventilation would almost certainly have compounded dampness through condensation. This is likely to be added to from ingress into the poorly ventilated sub-floor from the blocked drain.

A common problem with single glazed windows is condensation dribbling onto timber causing rot.

The fruiting body of window rot is exceptionally rare, especially such as large example.

The fruiting body looks like Phellinus contiguus or window rot. Window rot is very common in old properties. It is difficult to know if timber started rotting inside or outside. Window rot is normally isolated to timber windows and door frames. It is good practice to check for rot in nearby timber including the sub-floor void. Look for cracked timber.

Dampness was first seen on the back addition first floor chimney, after a recent, heaving winter storm.

The wall has remained damp since the storm, despite no further heavy storms.

A wall takes around 1 month per 25mm to dry. So, the fact that it is still damp does not mean there is an ongoing source of damp. However, there is a risk of hygroscopic salts being released by water, see later.

There are brown stains suggesting water has passed through building material.

The flashing above looks short, about 1 brick up the chimney stack. Moss suggests water is pooling.

Looking at the neighbours equivalent flashing, it is higher about 2 bricks, with no signs of moss.

At my next survey, there was improved flashing, flaunching and cowls, but damp continued via condensation.

The cause of dampness at this property was more evident, because marks were left by condensation dripping off the heavy bitumen sarking material onto a white piece of timber. And there was no ventilation. Many clients come to me after spending thousands on replacing roofs, or other forms of damp proofing only to find the root cause is condensation.

The chimney breast immediately above your back addition is damp.

The roof has heavy 1960's style bitumen based sarking material, to reduce the risk rain bypassing cracked tiles.

Sarking material reduces airflow, they are at risk of condensation forming. Ventilation reduces the risk but is the ventilation working effectively. There is a water tank in the loft increasing the risk of condensation on the sarking material.

Although water appeared on the wall soon after a storm, it does not necessarily mean that the roof leaked. The colour and profile of damp is the same as caused by interstitial condensation (condensation within building material).

The stopcock on the water tank in the loft was defective, causing continuous flow of water.

It is rare to find properties in London with water tanks still. They are a relic of less reliable mainswater in the past. The issues with tanks are: 1) condensation in the loft, 2) potential leak such as through the overflow pipe (although I saw no evidence) 3) legionnaires disease. I would connect all water directly to the mains, remove the water tank and old header tank for the heating system, from the property.

There was a loss of mainswater pressure. This was most likely to have been caused by the defective stopcock.

I could not get the stopcock on the tank in the loft to stop and therefore was unable to test for a mainswater leak. However, I think it is unlikely that you have mains leak as well as all the other issues.

There is a darkened, but colourless patch on the left-hand side front chimney breast.

The patch did not look damp, but I suspect that internal soot, such as from candles or smoke or has been trapped by damp from hygroscopic salts, marginally more than elsewhere.

The wall is damp deep within it.

The combination of colour profile and location suggests that you have hygroscopic salts embedded in the chimney breast. Hygroscopic salts hold moisture in dynamic equilibrium, i.e. there is no flow of water. They cannot cause rot, mould, woodworm or other damage. Calcium nitrate is the most common form of hygroscopic salt in residential properties. They are often found on chimney breasts and cause deliquescence, a form of condensation, at normal levels of relative humidity, above about 50%RH, see surveyor.tips/hygroscopic.
The simplest, cheapest, best solution is an oil-based primer-sealer such as two coats of Zinsser Cover Stain BIN, applied as a spray or paint with an overlap area of at least 300mm.

These salts are often associated with colour difference such as in the wallpaper to the left of the chimney breast.

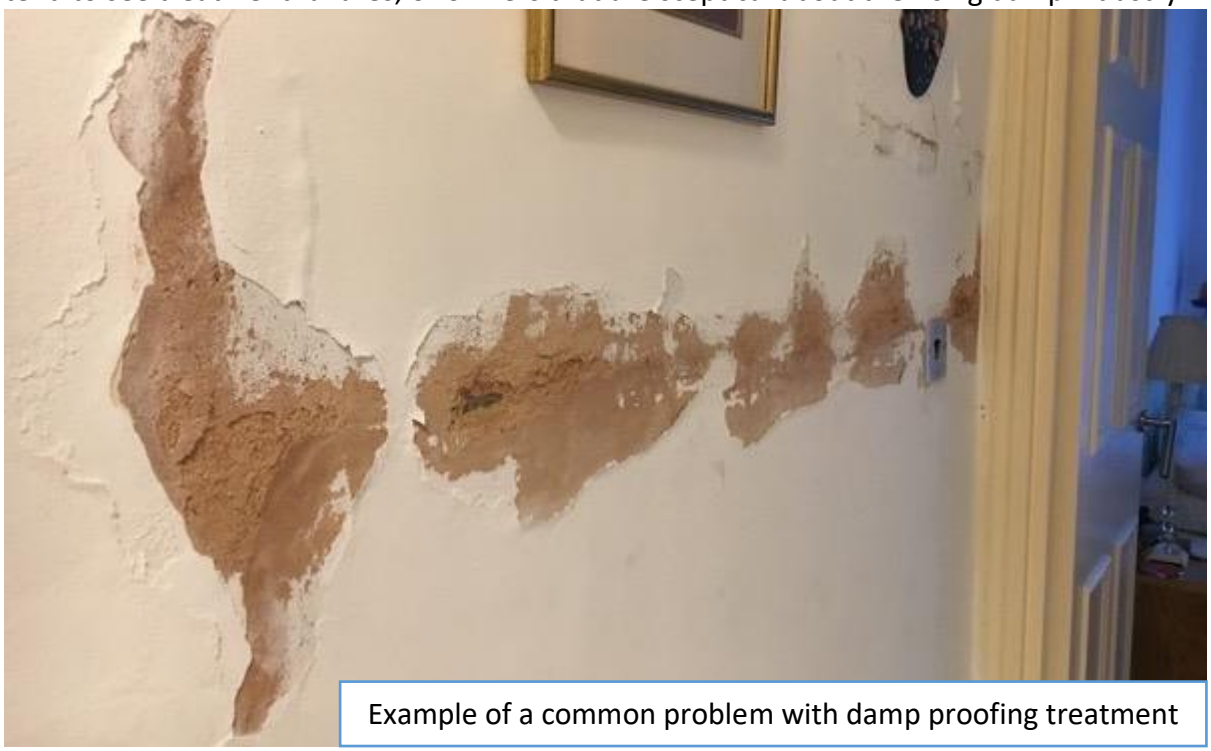
Often furniture causes the wall to evaporate unevenly. The wall is damp above the chimney breast, yet …

… dry below it. Indeed, the base of all walls were largely dry, which they would not be if there was rising damp.

Rising damp comes from groundwater, the water under the water table. As water passes through soil it picks up hygroscopic salts. The existence of hygroscopic salts on walls is the primary justification for the chemical damp proofing industry costing UK homeowners about £½ Billion p.a. However, hygroscopic salts also come from wood and coal (and equine urine). The movement of hygroscopic salts in walls has never been studied scientifically, according to the PCA, nor has rising damp been independently studied or replicated in the laboratory. The “risk” increases with increased damp and chimney removal.

Examples from properties that have been treated for rising damp

I mainly survey for homeowners wishing to identify the root cause of their damp, not for buyers, because of long lead times, freedom to investigate and risk of litigation. Therefore, I tend to see treatment failures, or owners that are sceptical about the rising damp industry.



Example of a common problem with damp proofing treatment

Replacing absorbent plaster with impermeable "slurry" will itself need replacement unless the cause is solved.

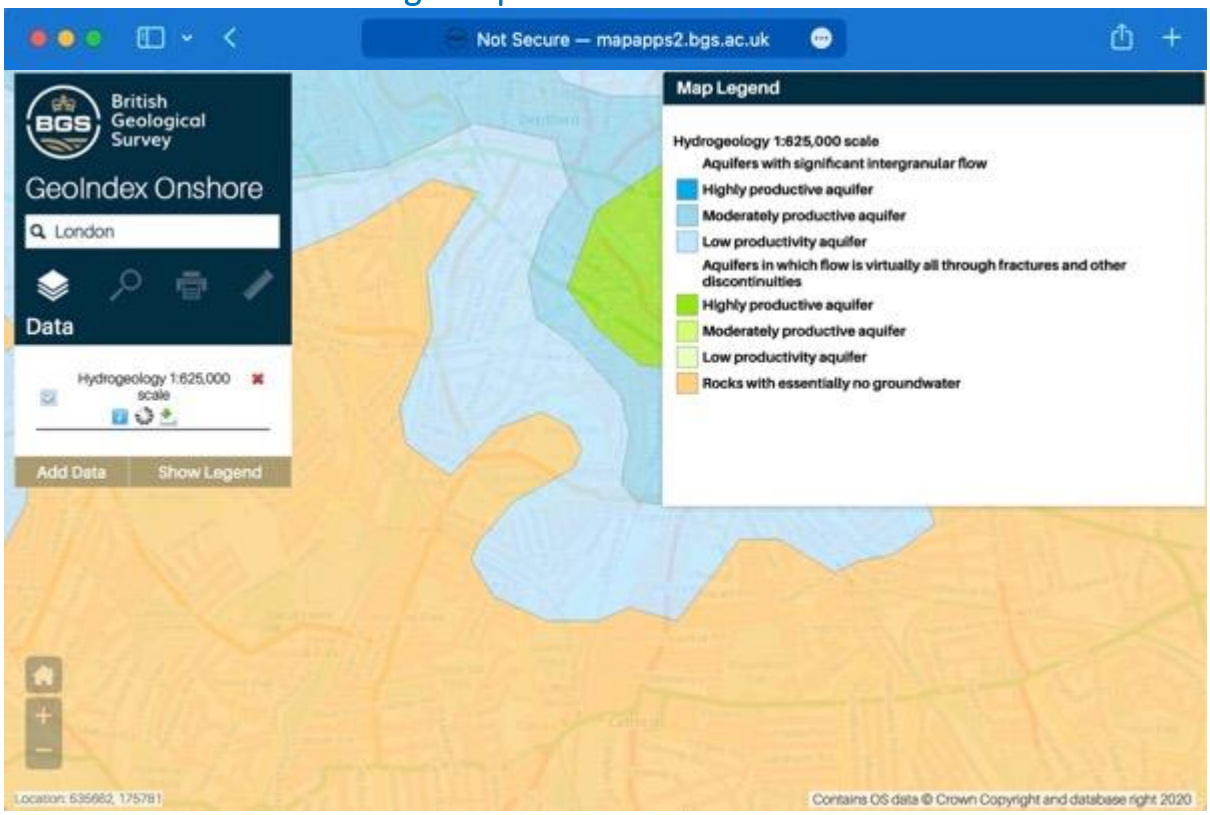
If as is commonly the case, condensation is the root cause, excess humidity can become trapped at the interface between the original permeable plaster and impermeable slurry. The damage here results from 2 damp proofing treatments from London's "leading" chemical damp proofer. The work was not covered under guarantee, instead an additional £16,000 was quoted to repair it. The root cause was an easily repaired bathroom extractor.

Example of treatment causing hygroscopic salts to migrate to a neighbour's wall

Hygroscopic salts are visibly along this party wall. The wall was dry until the neighbour had damp proofing.

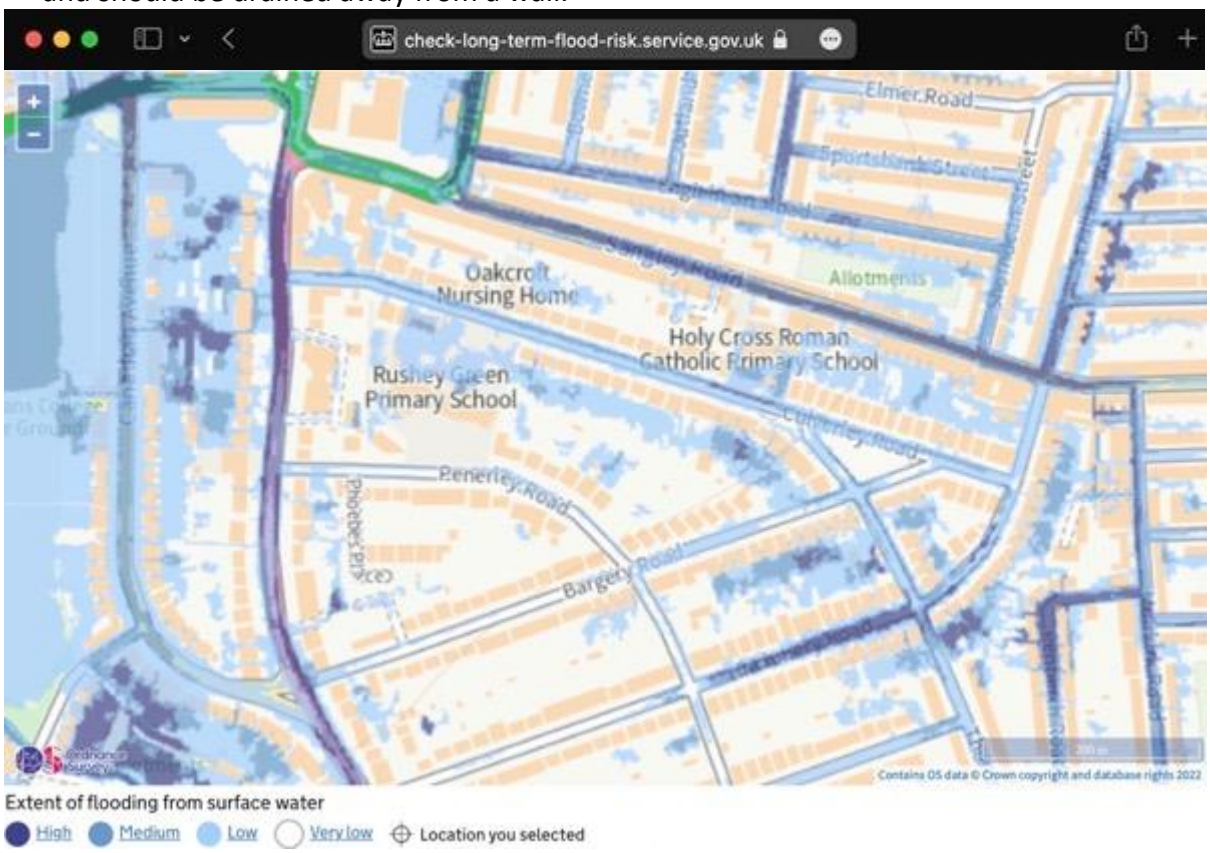
Damp proofing treatment falls under the Party Wall etc. Act 1996. Agreements need to be entered into with neighbours. Is it worth the risk of damaging walls, when there is no likelihood or convincing evidence of rising damp?

Groundwater – risk of rising damp



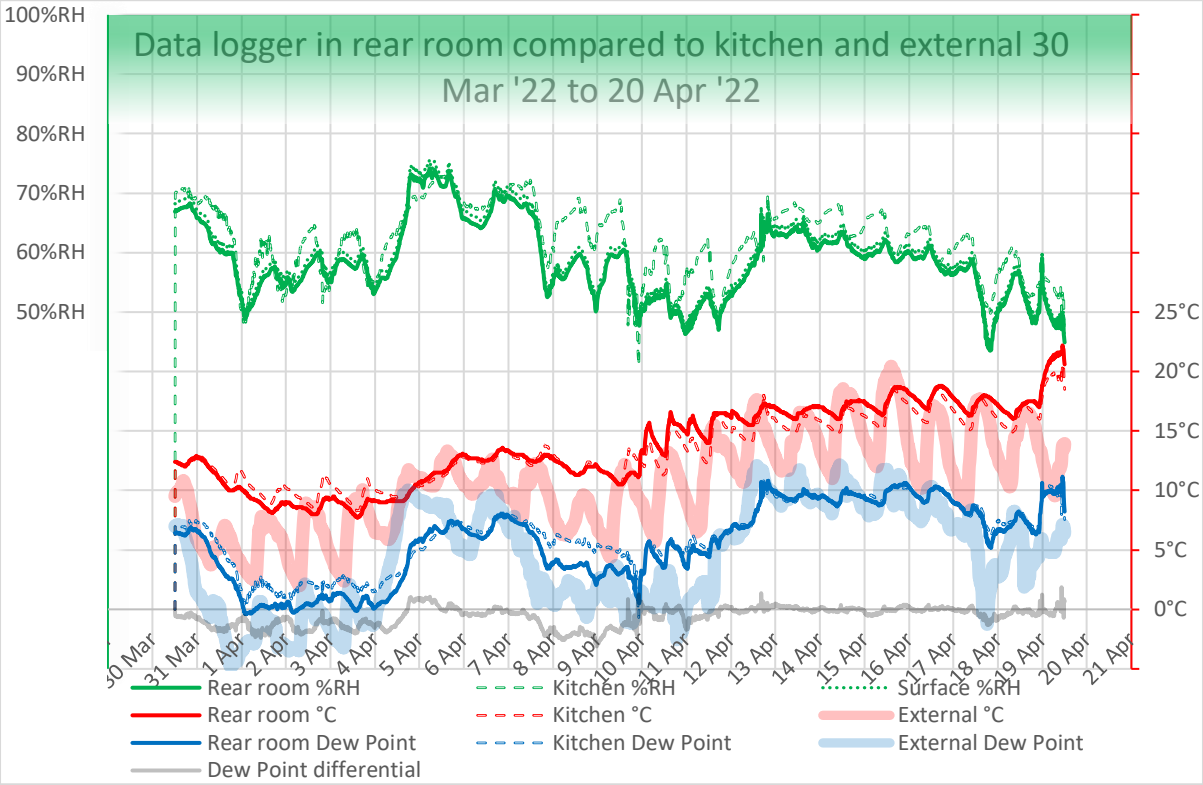
According to the British Geological Survey map, there is no risk of groundwater below the property.

- Rising damp is the "upwards flow of moisture through a permeable wall structure, the moisture being derived from groundwater".
- Groundwater is subterranean water below the water-table, a "capillary fridge" is detectable up to about 1M above the water-table. The capillary fringe is unsaturated and therefore only causes a small amount of absorption in bricks in contact with it.
- Groundwater behaves differently to rainwater in soil, as it is at or below the water-table therefore there is no gravitational force. Water can't disburse. By contrast rainwater can and should be drained away from a wall.



Surface water flood risk can be mistaken for groundwater. But even the risk of surface water is very low here.

DATA LOGGERS



This graph comes from the data from your data loggers.

Relative humidity

Relative humidity is a measure of how much vapour is in the air compared to air's capacity to hold vapour. It is a function of vapour pressure (quality of vapour) and temperature. As temperature rises, air can hold more vapour. Conversely as temperature drops, air holds less vapour until it reaches the point of saturation when condensation starts.

Dew point

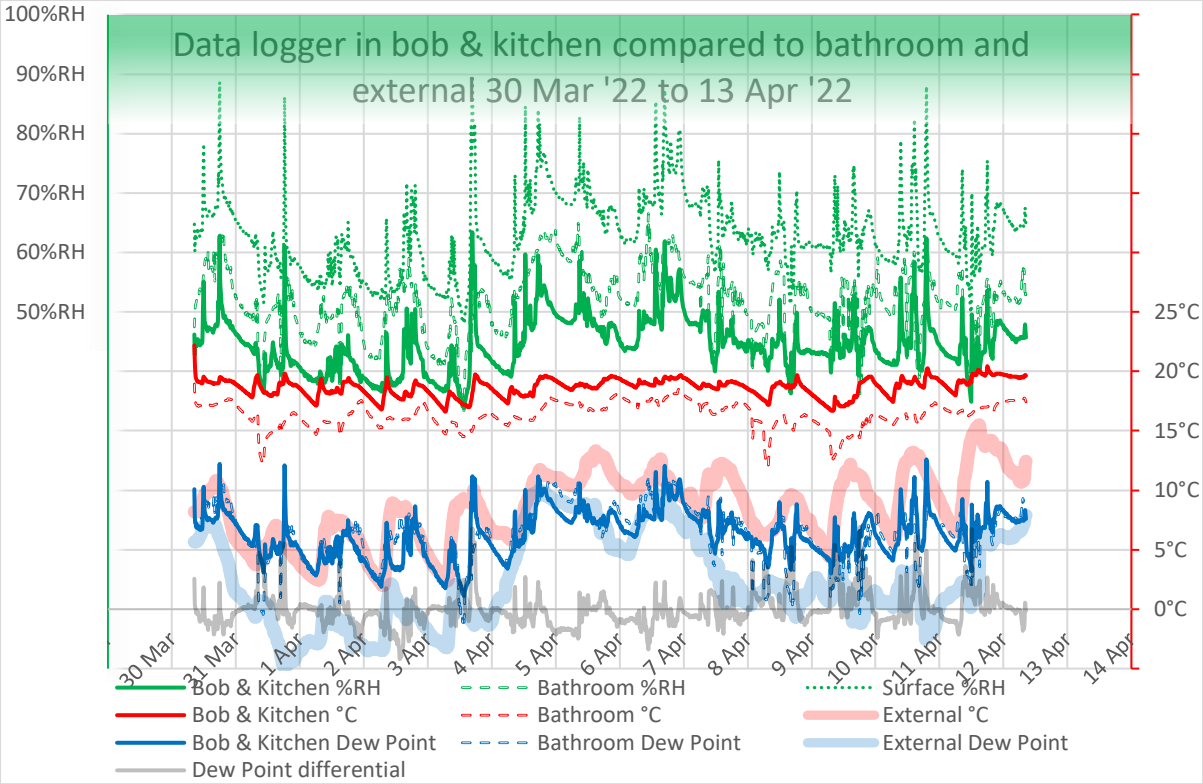
Dew point is the temperature where condensation takes place. It is also a proxy the vapour pressure. Comparing the dew point of one area to another makes it possible to see where vapour is being generated or conversely removed (normally through ventilation).

In conclusion from the dataloggers

1. During the period under investigation the surface relative humidity on the damp wall (green dotted line at the top of the graph) is never above the mould point (85%RH), when mould is at risk and at or close to the dew point when condensation starts.
2. The surface relative humidity is calculated considering the temperature difference between the datalogger and cold wall at the time of the survey – this is an approximation and illustrative. You can check the difference more accurately with a laser thermometer on a cold night to update the interface tab in the spreadsheet.
3. For each -1°C the relative humidity will be about 5%RH higher. The effect increases as the temperature difference between inside and outside increases such as when cold.
4. The grey line in the graph is called the dew point differential. The line shows that no vapour is being generated.
5. The external data is useful for understanding heat loss on a poorly insulated wall and potential for reducing vapour when replacing humid internal air with external air. Comparing internal to external dew points, shows very little vapour is generated in, or passing into the house (it has been dry, but residual damp should also show).
6. See daily condensation & mould risk @ mouldpoint.co.uk, and surface %RH calculator.
7. High relative humidity is more obvious in winter, you should restart the data loggers when occupying the property. Follow my recommendations to manage vapour.

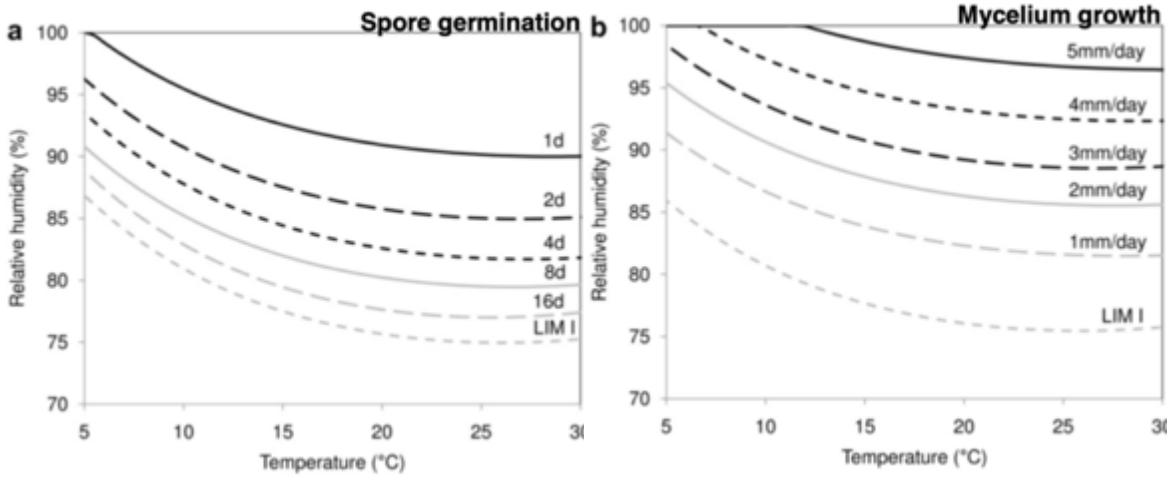
See surveyor.tips/**data-logger-analysis**/ and surveyor.tips/datalogger-examples

Comparative example from another property, with condensation and mould problems



This example property is well above 85%RH even in April.

Mould



Graph from UK centre for moisture in buildings

Very consistent levels of humidity above 75%RH for over 16 days at 15°C can cause mould to germinate and grow, see above graph. It is in part the consistency of high humidity, not just the humidity per se. For example, a property at 90%RH for five hours a day, then 75%RH or less, would have a lower risk of mould growth than two weeks at 82%RH.

We use 85%RH for 6 or more hours as a simple rule of thumb to help explain the phenomena, as it is applicable to most UK homes. However, it is a generalisation as can be seen above.

LIMITATIONS

Damp Surveys Ltd reports are designed to provide you with an informed independent expert opinion as to the damp and timber condition of the property together with any recommendations for further investigation or remedial work. We do not warrantee any findings in this report unless we enter into a separate warrantee agreement with you.

The survey was conducted during daylight hours. Damp will be more noticeable at night and when the weather is colder and more humid. Gutters are more likely to fail when full of leaves and during periods of prolonged rain and adverse wind. We make best endeavours but cannot guarantee being able to identify all forms of damp, rot and insect infestation affecting the property.

We carried out a careful and thorough inspection of as much of the property as was accessible. However, when it is not possible to make a full inspection, we make a professional judgement about the likelihood of a defect being present. In certain circumstances, this may lead to a recommendation for further action to open up an area for further investigation. We were unable to see the whole roof, all the guttering and some of the drains. We were unable to inspect woodwork or other parts of the structure which were covered, unexposed, poorly lit or inaccessible such as in the loft, cellar or sub-floor void, and therefore we are unable to report that such parts of the property are free from defect. There were no obvious signs of damp resulting from these limitations.

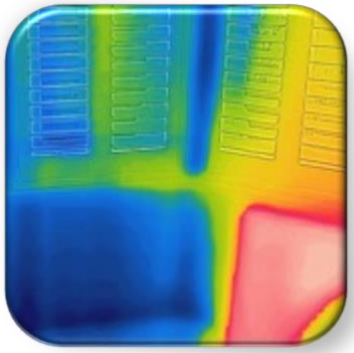
Negligence claims must be made within 90 days of the damp survey site visit. Clients must make best endeavours to monitor humidity and temperature on a damp wall and the closest source of humidity, by purchasing and placing two dataloggers for example the Smart Hygrometer measuring humidity on the wall and nearest source of vapour, before and after following our recommendations. These dataloggers have sufficient memory capacity to store 100 days of data.

This report is for the sole use of the client for whom the survey was undertaken and can only be relied upon for 90 days from the survey date. Unless expressly stated otherwise in this report, nothing in this report confers or is intended to confer any rights on any third party pursuant to the Contracts (Rights of Third Parties) Act 1999.

UNDERSTANDING THE ISSUES IDENTIFIED

Mould

Condensation



Heat

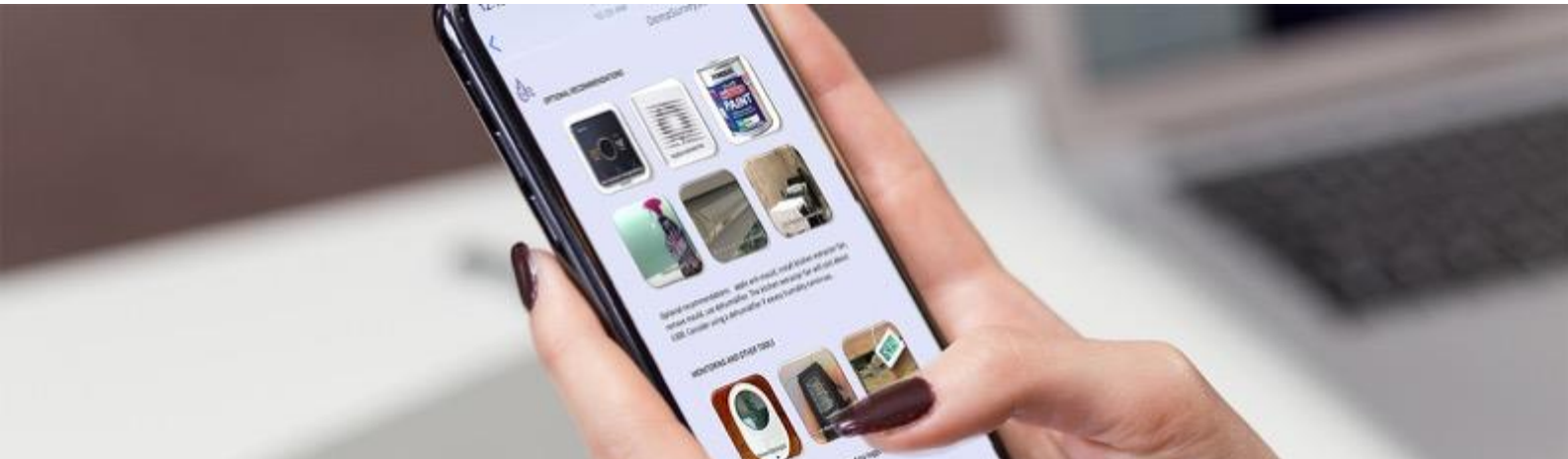
MONITORING AND OTHER TOOLS

Laser thermometer

Data logger

Monitor dryness

Video Link
https://www.youtube.com/watch?v=H4Lx9Y4ZFkE&t=6s
Video to help understand damp issues.



10 Energy Tips – online links

Reducing dependence on Russian gas & oil and saving our planet are incontrovertible. But, how do we efficiently reduce fossil fuels consumption, while keeping warm, dry and healthy?

Stop Putin . Spare Planet . Save Money

lostheat.co.uk is an educational service to be energy smart, damp aware and mitigate risks, spread the word.

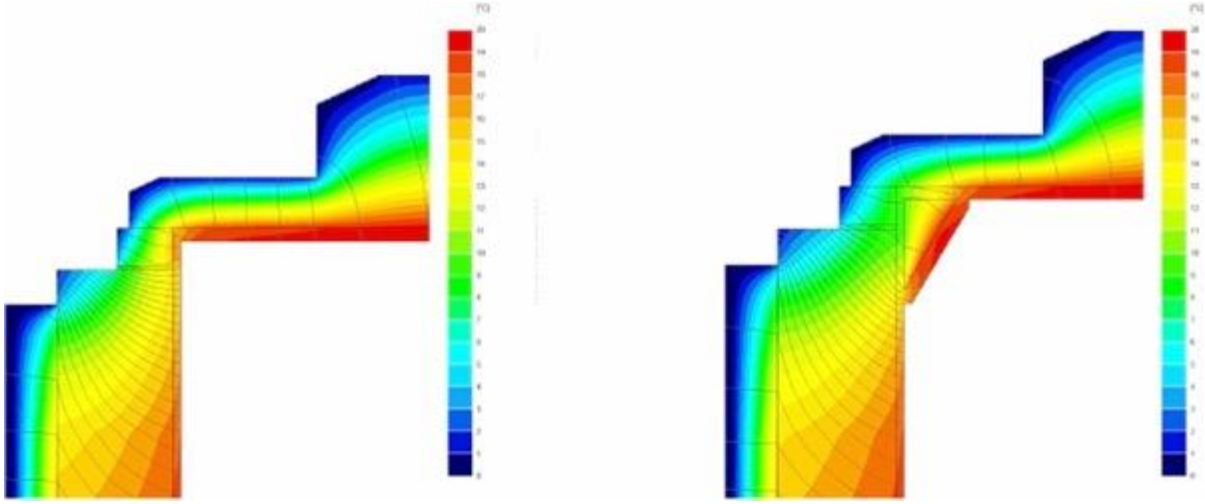
Making sense of conflicting demands

1 Intelligent insulation
2 Draught proofing
3 Consuming energy efficiently
4 Minimising vapour generation
5 Targeted ventilation
6 Improved system efficiency
7 Monitoring conditions
8 Coping with excess vapour
9 Zoning properties
10 Renewable energy

Intelligent Insulation - *in the era of increased energy costs, 4 factors become important.*

Insulate cold spots, improve air tightness, ventilate at source & monitor humidity. In combination with other tips, these should reduce energy use by in the order of 50%.

An example of intelligent insulation is coving. Here is an illustration of lost heat in a cross-section. The lost heat is similar into window and door reveals, and around metal fixings.



There is often heat loss at the top of external walls and under poorly insulated eaves.

Thermal imaging cameras are good at visualising cold spots but are expensive (typically over £400). You can use a laser thermometer (£15) as effectively. Ideally measure lost heat when outside is about 10 °C less than inside.

W.H.O. (World Health Organisation) guidelines for indoor air quality

"Management of moisture requires proper control of temperature and ventilation to avoid excess humidity, condensation on surfaces and excess moisture in materials. Ventilation should be distributed effectively throughout spaces, and stagnant air zones should be avoided."

FACT houses contain 30 - 40 litres of water as vapour typically. Each day, each occupant adds on average about 1.5 litres as follows:

½ litre condenses from each shower

Vapour from drying clothes is ½ litre per day

½ litre from respiration per day (¼ l at night)

Cooking produces about ¼ litre per day

Unvented vapour can cause condensation, mould and allergenic dust mites. The simple rule for keeping your property dry and mould free is;

Vent out as much vapour as produced, each and every day!

Central heating and double-glazing reduce background ventilation. To overcome this you should use mechanical extractors. Where properties are rented, consider using monitoring devices (such as a Govee WIFI hygrometer) and if necessary, install continuous flow extractors, but beware there can be a thermal cost caused by continuous heat lost.

FACT: dehumidifiers are a win-win, but untargeted, often insufficient and should self-drain.

UNDERSTANDING CONDENSATION AND MOULD

We all intuitively know and understand condensation. But there may be surprises:

- Heat without ventilation, won't reduce the risk of mould and condensation.
- Condensation can form on a warm summer's night, as dew on cold grass.
- Water can evaporate off ice, even when the temperature is below 0°C.
- Wet bricks lose heat rapidly. So rain increases the risk of condensation.
- Ventilating may be insufficient if some rooms are not heated or sufficiently ventilated.
- Mould only grows when relative humidity exceeds 85%RH.
- Mould mainly forms at night between 2AM and 5AM, when it is coldest.
- Allergies people associate with mould, typically come from dust mites.

FACT: Relative humidity

FACT: warm air holds more water vapour than cold air. The warmer it is, the more air's capacity to hold water vapour. Conversely the colder it is, the less capacity, until air cannot hold any more vapour. We call that the dew point or 100%RH. As soon air reaches capacity, condensation will form on the coldest surfaces.

FACT: Mould and dust mites

FACT: mould only grows when air is humid for over 6 hours. When it exceeds 85%RH. Dust mites are microscopic insects that can cause allergies. They grow in similar conditions to mould. So ventilate more to avoid allergies.

FACT: Health concerns

There are no health and safety issues from damp noted. It is in the occupier's interests to keep a property properly ventilated and temperatures above the dew and mould points throughout the property, thereby reducing the health risk associated with dust mites, bacteria, protozoans, as well as decorative spoiling caused by mould.

TIPS TO KEEP PROPERTIES CONDENSATION AND MOULD FREE

TIP: Reduce the production of vapour at source

- Keep bathroom extractor fans running, or window open for at least 30 minutes.
- Keep bathroom doors closed at all times, and bathroom windows open safely.
- When filling the bath, run the cold water first then add the hot.
- Dry clothes outside in a dryer or vented room, never on radiators or heated rail.
- Cook with tops on pots and pans, avoiding excessive boiling.
- Keep the kitchen door closed and extractor fan on where possible.
- Keep chimney breasts or passive vents open.
- Keep trickle vents open or alternatively, open windows on safety locks.

TIP: Stop mould forming

- Maintain external wall temperatures above 12°C, with low background heating.
- Declutter leaving space for warm air to circulate around cold surfaces.
- Where possible, avoid placing wardrobes and furniture against external walls.
- Avoid overfilling wardrobes and cupboards as it restricts air circulation.
- Use dehumidifiers or small wardrobe dehumidifying bags and replace regularly.
- Wipe mould and condensation off walls and clothes as soon as it appears.

TIP: monitor relative humidity

If all else fails, we suggest monitoring temperature and relative humidity with a datalogger to see what is happening.

TIP: Help

It takes teamwork to solve damp and mould issues in properties. It isn't easy or obvious. We can help, but please be patient, we are often exceptionally busy.