

# SAVA Technical Bulletin

For registered members of the SAVA Scheme

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**Welcome to the latest issue of the SAVA Technical Bulletin.** The bulletin focuses on Home Condition Surveys and associated non-energy issues. We trust that you will find the bulletin useful for your day-to-day work and we welcome any feedback you have about what you would like to see covered in future editions. The contents of this technical bulletin may supersede certain scheme rules or requirements appearing in the Product Rules, Inspection and Reporting Requirements, training manuals or elsewhere. *Members must therefore ensure that they have read and understood this document.*

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This issue of the SAVA Bulletin is a bit special as it has been ten years since NES acquired SAVA—Hilary Grayson reminisces on the 10th anniversary of SAVA working with NES.

*"The last ten years have had their ups (who can forget the wonderful Fast Track courses run in conjunction with the College of Estate Management?) and their downs (probably the less said about the 18<sup>th</sup> July 2006 the better), but I am still here and still championing condition reports and surveyor training.*

*"NES has changed—when it acquired SAVA Brian Scannell was Managing Director and the National Energy Foundation was the major share holder. Ten years on, Brian has left to pursue his original love, Oceanography, and Austin Baggett is now steering us through our next phase of growth and development, and the business is owned by Kingfisher plc. I have sat at numerous different desks (we are always having an office move it seems).*

## Has it really been ten years?

*"Things are on the up: it looks as though the housing market has turned a corner at last, and NES' commitment to the residential surveying profession is going from strength to strength.*

*"The new residential surveyor qualifications have been recognised by RICS and the final details are almost agreed (and certainly will be by the time you read this), the number of Home Condition Surveys being lodged is showing a healthy increase and we are working more closely with Bluebox Partners (Phil Parnham, Chris Rispin, Larry Russen and Alan Appleby) to bring quality residential surveyor CPD and training to the market.*

*"NES is also going mobile and you may have read on our website that we will be introducing NES Touch in April this year. Designed initially for energy assessments, NES Touch offers an enormous potential to revolutionise how we might collect and collate the information needed for condition reports.*

*"Ok, so I am getting a bit ahead of myself since that development is not quite yet on the programmers' roadmap, but who knows?*

*"And then there is the condition report itself. With the support of Kingfisher (strap line "Better homes—Better lives") who knows where this might lead over the next couple of years?*

*"So, are we where I expected to be when I rolled up to Milton Keynes back in November 2003? Well of course not. I thought we would have armies of Home Inspectors doing thousands of Home Condition Reports.*

*"But am I optimistic about the next ten years? You bet I am!"*



## Condensation in solid wall houses

In 2009 the Energy Efficiency Partnership for Homes published the guidance document *"Opportunities To Improve Hard To Treat Homes Within Cert"* which stated that many hard-to-treat homes in England and Wales had walls built from 9 inch (220 mm) thick brick work with no cavity. Providing insulation to these homes is problematic for a number of reasons. Perhaps one of the most difficult types of these homes to treat are those built in the early 20<sup>th</sup> century with solid brick walls that were externally rendered, many of which were originally built as social housing.

Improving the thermal performance of such homes is a complex science and requires considerable expertise. Many of the attempted repairs and 'improvements' made on homes of this type have failed to fully appreciate the skills required and resulted in new defects as the thermal performance of the buildings and the pattern of occupation changed. The property in this case study is a typical example.

### Background

The property is an end-terraced former council house built in the 1920s. It has solid brick walls with all external wall surfaces rendered with cement. When sold in 2012 it was described by estate agents as "suitable for refurbishment".

The defects to the property were fairly extensive: the rain water gutters were leaking, the external render was cracked and it was also unkeyed in some areas, particularly to lower walls.

The windows to the front of the property had been replaced, probably ten years previously, with uPVC frame double-glazing. However, to the rear and the side elevations the windows were single-glazed with timber frames. Various damage was found to the windows including very minor scattered rot to timber frames and poor overall decoration.

Internally all the fittings were dated, there was damp observed to the main walls, a leak to the side of the chimney breast between the first and ground floors and associated damage to joinery.

***"Opportunities To Improve Hard To Treat Homes Within Cert"*** was first prepared by the Hard To Treat Homes Sub-Group of the Energy Efficiency Partnership for Homes.

(Version 1.0) in March 2009 is one of the primary guides upon which the definitions of Hard-to-treat Homes have been qualified within RDSAP and ECO.

A survey report was provided to the purchasers and this was discussed with them. The surveyor reinforced the point made in the report that specialist advice should be obtained regarding the damp as this was probably caused by a combination of possible rising damp, but most likely also penetrating damp through the cracked render and failure of the seals between the walls and windows.

In addition, the point was made that many of the adjoining homes had been fitted with external wall insulation under a council improvement scheme but this house had not, presumably because at the time that the insulation was fitted it was already in private ownership.

The purchaser was then clearly advised by the surveyor that solid wall properties are prone to condensation and any home improvements, particularly thermal improvements, had to be carried out with appropriate expertise and in the knowledge that altering the balance between insulation, heating and ventilation could actually result in worse damp problems, caused by condensation.

### The New Survey

Unfortunately this advice was not heeded. In mid-2013 a new survey was commissioned and advice sought in curing a severe damp problem in the property.

The property had been refurbished and let to tenants in the previous autumn. By spring 2013 there was extensive mould growth to the internal surfaces of the main walls and other issues.

When the surveyor re-inspected the property it was noted that the following work had been undertaken:

- ♦ the replacement of single-glazed windows to the side and the rear elevations with basic quality uPVC frame double glazing;
- ♦ the installation of a chemical damp proofing treatment to prevent rising damp;
- ♦ the redecoration of the base of the external walls—presumably to disguise drill holes consequential from the injected damp proof course;
- ♦ the redecoration of the interior of the house;
- ♦ the refitting of the kitchen;
- ♦ the replacement and relocation of the central heating boiler.

Repairs to the external render recommended in the survey had not been undertaken and only temporary or poor repairs had been carried out to the rain water gutters.

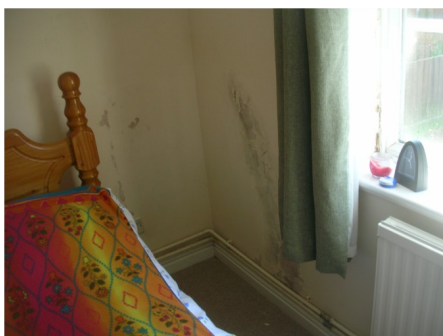
The main issue now affecting the property was mould growth and perishing plaster to internal walls. The cause of this appeared consistent with a combination of penetrating dampness and with condensation. Penetrating dampness appeared to have occurred as a consequence of damp ingress through the cracked external render and possible issues related to the rain water goods above.

Condensation is typically caused by a combination of inadequate insulation, ventilation and heating or an imbalance in the three factors and in this property these three were now out of balance.

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The damage to the interior was extensive. The right hand corner of the house (Photos 1 & 2) was affected by extensive mould growth to the interior surface of the reception room (now used as a bedroom by one of the tenants).



**Photo 1:** The right hand corner of the house showing extensive mould growth

Invasive investigation was conducted at this point by drilling two holes in the wall around 1.5 metres above the internal floor level and inserting deep probes attached to a moisture meter. This confirmed a high level of moisture in the deep wall in addition to that also recorded on the surface of the wall. This would typically indicate that the wall here was affected by penetrating damp. Black mould growth was also extensively growing on the wall surface. Such growth is more typically associated with condensation as mould will not grow where water is contaminated by the salts typically found in moisture from penetrating and rising dampness.

Damp was also recorded with the aid of the moisture meter around the front window of the same room (Photo 2).



**Photo 2 :** Front window of the same room (Photo 1)

Black mould growth was also extensively growing on the wall surface, again more typically associated with pure water and therefore condensation related.

Moisture meter readings taken in the walls of the left hand front reception room indicated low levels of moisture present in the plaster and there was evidence of less severe black mould growth. This would therefore appear to be consistent primarily with condensation rather than damp penetration.

Substantial mould growth had also developed in the cupboard area under the stairs (Photo 3).



**Photo 3:** Mould growth in the cupboard under stairs

Readings taken with the moisture meter indicated high dampness in the corner and surrounding wall. This could possibly be due to penetrating dampness but also due to condensation in a part of the property that was not heated and was separated from the rest of the building, thus not benefiting from drift heat.

The staircase walls were also affected by extensive black mould growth (Photo 4). This also extended to the cupboard at the top of the stairs.



**Photo 4:** Mould growth on walls and ceiling of staircase

In the front bedroom (right hand side) readings taken with the aid of a moisture meter indicated marginal dampness in the wall around the corner of the building. Evidence of black mould growth was also noted to the wall surface and around the window.

The surveyor was therefore beginning to form the opinion that the main issues in the property were caused by a combination of penetrating damp and condensation (a problem which would be made worse by the damp entering the walls from external sources). However, there was other evidence of further causes of damp:

- ♦ The chimney breast in the left hand front reception room was originally affected by a leak from a water tank and pipework located mainly in the room above and the floor/ceiling voids between the two rooms. However, there was now a damp stain to the chimney breast high on the wall. Similar damage was to be observed to the chimney breast also in the bedroom above. This required further investigation, including inspection of the chimney stack above, to verify the cause and prevent further damage.
- ♦ There was a leak from the bathroom where water from the bath/shower was running down the wall, passed the shower screen, on to the bathroom floor (Photo 5). This in turn was causing damp stains and damage to the ceiling of the kitchen immediately over the new boiler.
- ♦ There was also damp penetration around the back door near the location of the boiler but lower down the wall (Photo 6 over the page).

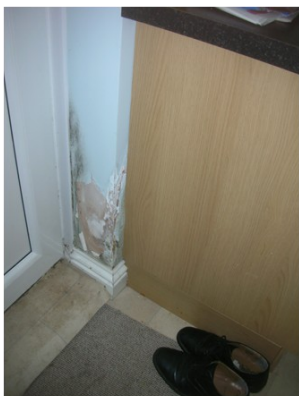
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**Photo 5:** Leak from bathroom



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**Photo 6:** Damp penetration at base of back door

## Occupation

The current tenants included five adults, four of whom occupy the dwelling full time and one who was a student away from home and therefore in residence during holidays only. They had been in occupation since September 2012.

Questioning confirmed that the tenants typically used the kitchen for cooking and that the installation of an extractor fan two months previously had marginally improved conditions inside the property.

There was also a washing machine in the kitchen but no dryer and so most clothes drying was either undertaken in the garden, during warmer, drier times, or in the house. Clothes drying inside a property will add to the level of internal humidity but is fairly common in households.

The tenants bathed and showered no more frequently than any typical household.

## Heating

Heating controls in the property consisted of a Honeywell programmable room thermostat combined with thermostatic radiator valves. However, the programmer was being controlled manually by the occupants rather than running to a set programme. This is one factor that would be undermining the balance of HVI in the dwelling. The tenants needed to be educated to use the heating system more sympathetically to the balance of HVI in order to reduce the risk of condensation.

However, this was not the main cause of the condensation and therefore the investigation turned to other potential causes.

## Insulation

Insulation was provided to the roof void between the ceiling joists. It was also provided to the windows in the form of double-glazing. As already indicated, when originally inspected there were double-glazed windows installed to the front elevation only. Good double-glazed windows are essentially well insulated and will prevent, to a degree, condensation occurring. However, the poor insulation provided by solid walls causes an imbalance in the thermal performance of the building envelope. Consequently, the well-insulated windows and roof were keeping parts of the structure warm, whereas the solid walls provide extensive areas where internal air comes in contact with the cold internal surface of the main walls. This was considered to be the prime cause of condensation occurring.

The damage to external render which had allowed damp penetration was also probably lowering the wall temperature and hence the surface temperature of the internal wall surfaces in the left hand side of the building.

This appeared to account for the more pronounced mould growth around the stair well and to the front right hand corner of the dwelling.

## Ventilation

The ventilation of the property was relatively good. The extractor to the kitchen had improved conditions in the kitchen area and there was also an extractor fan fitted in the bathroom. Chimney flues to both reception rooms were vented and there were also ventilation bricks in the main walls, for example on the staircase; in the back bedroom and to the front left reception room window.

One potential area of weakness in accommodating adequate ventilation was the uneven distribution of ventilation points, the lack of trickle vents in both the old and new replacement uPVC windows and the consequential poor circulation to some colder zones within the property. This could be contributing to higher levels of humidity in the property and subsequent condensation and therefore mould growth around window openings.

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Condensation occurs when water vapour in the air comes into contact with cold surfaces. The air contains varying amounts of water vapour but warm air can hold more water vapour than cold air, so when the warmer air comes into contact with the colder surface of (say) a window or wall surface in a dwelling, the air cools rapidly, changing the relative humidity of the air and it cannot hold the same amount of water vapour. The colder surface therefore acts as a focus for the cooling water vapour to form into condensation, as the temperature of the air has reached the dew point.

Every day activities, in particular washing and drying laundry, cooking and bathing produce warm air containing large amounts of water vapour. When the warm air containing water vapour cannot escape from the home through an open window or through an air vent, it will move around the house until it comes into contact with a cold surface and forms condensation.

Homes that are poorly and intermittently heated can be more prone to condensation, this is because the surfaces of rooms are less likely to be maintained at a constantly warm temperature.

Condensation is most likely to appear around window and door openings, on the glazing itself and where the floors and ceilings meet the outside walls. It can also appear in areas where air circulation is poor in a building, such as in cupboards or behind furniture placed against an outside wall.

Where condensation occurs persistently then black mould growth will develop.

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Furthermore, the seals around the window frames were failing and allowing some damp penetration, thus cooling the wall area around window openings and promoting further condensation.

The purchaser had failed to improve the property in sympathy with the issues associated with hard-to-treat homes. He had failed to repair external render, therefore penetrating damp caused dampness in some areas, thereby cooling the walls and allowing condensation to occur.

Improvements in insulation to the dwelling (such as double-glazing) had failed to incorporate balancing improvements in ventilation (such as trickle vents to the windows).

## Summary

The so called improvements had increased the risk of condensation and the failure to repair render to the walls had made matters worse.

There are various measures that can be installed to reduce condensation in this house, but the key measure is the repair of the external render. The issue of penetrating damp to the walls must firstly be resolved. It would also be prudent to improve the balance of insulation to the dwelling by providing some form of insulation to the walls to prevent the promotion of condensation.

The installation of external solid wall insulation would reduce the risk of cold bridging while also replacing the damaged and breached render. Solid wall insulation will also incorporate detailing around window and door openings that could solve any potential breaches in seals.

In this type of property it might also be suggested that a whole house ventilation system such as a mechanical positive input (pressure) ventilation system be installed. However, in the first instance it is necessary to remedy the deficiencies and defects as described above in a staged solution to eliminate the causes of the dampness and condensation.

## The trouble with flying freeholds

The trouble with flying freeholds is that they can be a legal complication that is not always that easy to spot. A flying freehold occurs when one property overlaps another and part of its boundaries are overlapping the adjoining property (known as the submerged freehold, Photo 1). Typically this kind of legal anomaly develops when two properties were previously owned by the same landowner and that land owner divided the building without regard for preserving a vertically clean boundary between the two properties created in the subdivision.

Commonly this is found in very old properties that a landowner has split into smaller units to house employees before the 20<sup>th</sup> century (such as labourers' cottages). It also occurs in Victorian terraces deliberately built with less need to preserve the vertical boundary than the need to make best economic use of every inch of space in the terrace. Almost all flying freeholds occur before the 20<sup>th</sup> century and before land law became more clearly defined by legislation and before the introduction of planning and building regulation. It is extremely uncommon to find a flying freehold in a 1960s property but not impossible.



**Photo 2:** 1960s end terrace

Take the subject of this case study (Photo 2). It is a 1960s former council end-terraced house. It is built to two storeys in traditional brick masonry with a sloping roof. The Local Authority had owned it for at least two decades along with the other houses on the estate.

After some verbal enquiry and based on fairly circumstantial evidence, the surveyor concluded that sometime in the 1980s the council decided to punch



**Photo 1:** Look at the way these cottages are painted: the first cottage (left) in the row is white and the entrance door (partly obscured by the car) is below the first floor of the second cottage (middle-cream coloured). The entrance door of the second cottage is below the first floor of the third cottage (right-white). Each demonstrates an example of flying freeholds.

a hole through the party wall between the end-terraced house and its neighbour. The assumption was that this was done to house a larger family in No. 41, making use of vacant space in No. 40. The council re-arranged the subdivision of the accommodation between the two houses so that No. 41 gained a fourth bedroom and No. 40 lost one, but at ground floor level the two houses remained the same. In doing so the potential for a flying freehold was created, though it did not exist at the time of this moderation since the Council was the legal owner of the freeholds of both properties.

Fast forward in time and both properties are bought under the Right to Buy scheme, and a flying freehold was inadvertently created. The properties were probably then in the intervening years between then and now without any issue being raised. In fact the surveyor knew that No. 41 was purchased by its present owner in 2012, who took the opportunity while living there to refurbish the property and update the kitchen and bathroom before placing the property back on the market.

The surveyor in question was instructed to inspect the property for the new buyer and carry out an RICS Homebuyer Report (this is the same level of inspection as the HCS). The flying freehold is not apparent from the external inspection.

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The bedroom window belonging to the flying freehold element is overlooking the garden of No. 40. The asbestos cement tile cladding to the exterior wall of that room is the same as the rest of No. 40 and a different colour (terracotta) completely to that applied to the rear elevation of No. 41 (charcoal) (Photo 2). It is only upon internal inspection that the anomaly is suddenly apparent.



**Photo 2:** Rear elevation of Numbers 40 (left) and 41.

In reporting this in the survey, the surveyor obviously drew attention to the legal complication of the flying freehold for the conveyancer to resolve—duty done. This is exactly what the surveyor would have done had the report been a HCS—as an issue for the conveyance to deal with.

But as this is a flying freehold created in the 1980s there is therefore also a requirement for the alteration to at least be undertaken with the approval of the Local Authority and Building Regulations to be observed and certification obtained. The surveyor should also point out that legal advisers make appropriate enquires to verify that statutory and/or Local Authority approvals were obtained and explain the implications to the client.

In this particular case it was therefore a puzzle some weeks later when the surveyor received an email from the conveyancer that the Local Authority did not possess records relating to this alteration. They had either been lost, disposed of or the Local Authority had failed to obtain formal approval from its own Building Control Department when the Housing Department had undertaken the alteration.

Some correspondence was then entered into between surveyor and conveyancer during which the conveyancer asked if the work looked as if it complied with Building Regulations at the assumed date the work was undertaken in the 1980s. The walls were solid and so provided the necessary fire resistance, as did the ceiling. The ceiling of No.40 was assumed to be plasterboard (but the surveyor had not inspected No.40) and so probably was sufficiently fire retardant to comply with the Building Regulations at the time of alteration.

This only left the floor void. Surveyors do not carry out invasive investigations when undertaking surveys and in this case the room was fully fitted with carpet and therefore the surveyor could not even look to see if there was a loose floor board to peak under. Admittedly, the floor void is a small area but still a risk: the surveyor therefore could not state categorically that the flying freehold alteration had been carried out to comply fully with Building Regulations.

The conveyancer therefore had a problem. He had a responsibility to the buyer to advise them of the issue. More importantly, like most residential sales in the UK, the conveyancer also had a duty to advise the buyer's lender (for whom he was also acting). The only way to resolve this was to undertake a further inspection after the seller had lifted several floor boards so that the void could be inspected.

The original surveyor was instructed by the conveyancing solicitor to return to the property and undertake a further inspection of the floor void. The floor void between Nos. 40 and 41 was formed of timber floor joists with what appeared to be a single skin of plaster board to the ceiling of the room below (No. 40). Timber floor boards were secured to the upper side of the floor joists to provide the floor of the bedroom of No. 41. There was no fire stop material or fire break walling between the continuation of the floor void between Nos. 40 and 41 and this is a fire hazard (see Photo 3).

As an additional complication, but to be expected, electric cables and pipes serving the service installations of No. 40 also occupy the void space between the two properties.

After this second inspection the surveyor recommended that fire break provisions be made to the room to comply with current Building Regulations. A suitably qualified contractor should be instructed to quote for and undertake this work, and provide sufficient warranty or documentation that the work undertaken meets the current standard.

This illustrates a very tricky situation for all residential surveyors. Even though many Chartered Surveyors do not carry out work for lenders they do have to be aware that any issue with a property that restricts the ability to obtain a mortgage on a property affects its future saleability and therefore the advice to clients has to be given with the future saleability of the property taken into full consideration when initially reporting and in subsequent advice.

A surveyor working under the Home Condition Survey scheme is not giving the buyer any 'advice', either on how to remedy a defect or deficiency that may exist or on the future saleability or otherwise of the subject property. The surveyor is merely providing a commentary and justification on the **condition of the property** on an element by element basis.

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**Photo 3 :** There is no fire stop material or fire break walling between the continuation of the floor void between No. 40 and No. 41. This is a fire hazard.



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It is interesting to note that while the circumstances are very unusual, the lender in this case was already at risk. They had lent to the seller of No. 41 in 2012 for their purchase and were proposing to continue lending by giving a mortgage to the buyer: this is still an issue that needs to be resolved as there is a risk that upon resale this issue could be highlighted again to a potential purchaser and their lender.

Many lenders may decline to lend for a number of reasons including the fact that the alteration undertaken does not meet required standards. It is therefore important that the work undertaken is adequately documented to avoid a reoccurrence of the issue.

The second inspection was beyond the normal (non-invasive) inspection of a HCS and was undertaken as a result of a separate contract. (Note that if you undertake such an inspection you would not be able to rely on the insurance offered by the HCS but would have to arrange separate PI insurance.)

The survey revealed a defect in construction that required attention. Typical lender guidance does not adequately cover this situation but the lack of Local Authority records and the fact that the defect was now known required that a repair be undertaken.

So how should the condition rating for the HCS be applied without the detailed construction knowledge obtained in the second inspection?

In parallel circumstances where we find a lack of fire break to a party wall in a roof void we would apply the condition rating on the grounds that there is no fire break installed to a standard to comply with **current** Building Regulations and subsequent the health and safety implications of this.

However, current regulations **now require greater fire resistance between the walls and ceilings of properties than were required in the 1980s.**

It is interesting to note that lender guidance generally follows the premise that we accept work undertaken to a

property by way of alteration as acceptable for mortgage purposes, if it complied with the building regulations at the time of alteration. This thinking concurs with the SAVA Protocol but the starting point is always: "Is there a potential hazard?"

So, is there a potential hazard? **Box A?** Because the current regulations will require a greater fire resistance between walls and ceilings than was required in the 1980s, it would be fair to assume (without any further investigation, but substantiated by as much photographic and desk study evidence in the site notes) that the void was not compliant with modern standards and therefore there was a hazard. **Box B**

It would be difficult to provide fire barriers between the flying freehold bedroom in Nos. 41 and 40 to comply with current Building Regulations and it would need the co-operation of both property owners as upgrading of separation to walls and ceilings of both properties would be necessary in addition to providing fire breaks in the floor void.

To be pragmatic and treating this situation in the same way as one would if a single element of a whole house were found to be non-compliant and defective, the only area that possibly did not meet the Building Regulations at the time that the work was undertaken was the floor void.

Therefore, as a minimum, firebreak walling and some additional insulation had to be provided in the floor void to ensure that wall separation of the two dwellings continues below the party walls into the floor void and, if practical, that the fire barrier between the ceiling of No. 40 and the floor of the bedroom of No. 41 was improved.

All work would also require compliance with Party Wall legislation. So the scale of the remedy is **High—Box D**

The next thing is to review the element against legislation. Did it breach standards at the time of the alteration and is there any legislation which applies irrespective of age?

In truth, without that second invasive inspection, we would not know. I would suggest that, if this were a HCS, **Condition Rating 3** should be applied on the grounds that further investigation is needed. Words used might be as follows:

*It is likely that the alteration to create the flying freehold over No. 41 was undertaken in the 1980s. At that time the properties in question were owned by the Local Authority. It is unlikely that the alteration would meet modern Building Regulation standards with respect of a fire break between the two properties. However, due to the restrictions of the inspection (fitted carpets, fixed floor boards etc.) it was not possible to determine this for certain.*

*Nor is it possible to determine if the standards applicable at the time were applied. Due to the possible risk of any fire spreading between properties further investigation should be undertaken.*



**Photo 4:** The matter of fire resistance to the floor void was resolved by providing fibre glass wool insulation between the floor joists to at least improve the fire resistance between the two properties.

## Flat over shops—do you agree with the surveyor?



The property being surveyed was a first floor flat above two shop premises trading as a delicatessen and barber shop.

Because of detailed local knowledge, the surveyor knew that the building in question was very old—in fact much older than it would at first appear—and had been altered numerous times including some rebuilding following bomb damage sustained during WW2.

The property had six **Condition 3** rated issues: the chimney stacks, the roof coverings, the main walls, the roof structure, the floors and the electrics. This article looks at the issues surrounding the floors only.

The floors were all timber but none of the wooden components were accessible as they were all covered by carpets, lino or floor tiles. The surveyor noticed that there was pronounced sagging of the large living room, which spanned the front of the property across the delicatessen shop underneath.

The Law Commission has this helpful definition of easements.

*"An easement is a right enjoyed by one landowner over the land of another. A positive easement (such as a right of way) involves a landowner going onto or making use of something in or on a neighbour's land. A negative easement is essentially a right to receive something (such as light or support) from the land of another without obstruction or interference."*

The flat, therefore, has a right of support from their neighbours, in this specific instance the shops below. Therefore, how should the surveyor investigate this sagging?

The surveyor went into the delicatessen below the living room and the photo below shows what he found.



The surveyor did the correct thing in this instance. He 'followed the trail' and went into the shop below.

*Had he not been able to gain access to the property below, he should have recorded this as a limitation of inspection and called for further investigation.*

As it was, since he was able to see the single metal post in effect holding up the floor above he reported as follows to his client:

*"There is quite pronounced dishing or sagging in the living room floor towards its middle. In the delicatessen below a metal post has been introduced to check this sagging. There is another metal post supporting the large lintel that is above the shop front. Without these metal posts the span of the floor above is too great for the timbers of the floor. The ends of the floor timbers, where they bear on the stonework (or other material) could be investigated further to establish their condition."*

In addition he told the client:

*"A traditional property such as this is unlikely to meet modern standards of construction strength but this does not mean that there is an imminent problem. You could seek the advice of a structural engineer to establish whether support is adequate..."*

The question arises: Is the **Condition Rating 3** correct in this instance and should the surveyor have suggested further recommendation or just trusted his instinct regarding the metal posts?

I am guessing that the surveyor applied the condition rating in the following way:

A → J → M → P → R

The defect is serious because it spoils the intended function of the building (clearly there will be a limit to how much loading the floor will take and this could limit the occupier's use of the property).

Also, any repair would have considerable hassle factor and result in considerable cost because it would necessitate accessing and disrupting an adjacent property and business.

My view is that this alone would justify a **Condition Rating 3**, but in this case the surveyor indicated that an engineers report may be appropriate and also the possibility of further investigation, though he used the word 'could' rather than 'should'.

I might have written the report as follows:

*"There is a quite pronounced sagging of the living room floor towards its middle. In the delicatessen below a metal post has been installed to check this sagging. There is another metal post supporting the large lintel that is above the shop front. Without these metal posts the span of the floor above is too great for the timbers of the floor."*

*"Although I could not access any of the wooden components of the floors due to the floor coverings, it is very possible that the ends of the floor timbers, where they bear on the walls, will not be in a good condition. While a traditional property such as this is unlikely to*

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*meet modern standards of construction strength, this does not always mean that there is an imminent problem. However, I have drawn this conclusion in this instance from the visible evidence elsewhere of the poor standard of repairs that have been carried out as well as the age.*

*"My conclusion is that the floor loading in the living room will be limited which could have an implication on how you intend to use the property. If you did wish to repair the floors to improve the floor loading in this case there would be additional costs associated with such repairs because of the nature of the property below."*

Would you have gone with the original surveyor and suggested further investigation or would you have followed my approach?

Email your comments to the editor at [bulletins@nesltd.co.uk](mailto:bulletins@nesltd.co.uk).



## Limitations of inspection

The latest entries to our competition illustrate two situations where limitations might prevent your inspection. The first, from John Bennett, shows how difficult it is sometimes to inspect rooms in a house. John commented:

*"It was difficult to know where to start with this one....Nearly every room was like this, floor to ceiling furniture and shelving. Similar story in the roof space."*



Jeff Parsons submitted the following entry of a house he inspected in rural Worcestershire. Parts of the roof and many of the walls and windows were hidden behind this creeper (Photo 1). The gable wall contained two stone mullion windows on the first floor (Photo 2) which were also hidden internally by cupboards (Photo 3).

Both entries share the prize of a £50 credit towards NES training.

See below for our new competition and your chance to win a Samsung 10-inch tablet.

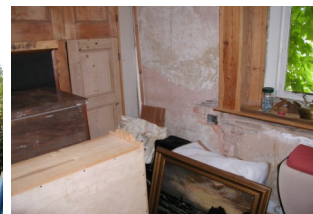


Photo 3

## Win A Samsung 10-inch Tablet

The house in the two photos below left is thought to have been built in the **1850s**. Is this one of the oldest examples of cavity brick walls or, is the wall thickness disguising something more extraordinary? We're going to keep you hanging on—you will have to wait for the next issue of the SAVA Bulletin for the full case study. Meanwhile, we are going to set you a challenge. We want to find the oldest cavity wall dwelling in Britain. The person who can send us the oldest cavity wall dwelling will win a **Samsung Tablet** loaded with our **NES Touch App**.

To win, you will need to send us photos showing the building in question with evidence that proves beyond all reasonable doubt its cavity construction, as well as the age of the building. Evidence should include wall thickness, the building materials used and either photos (of a date stone for example) or other evidence to prove the age of the dwelling. Also, please provide a postcode.

The competition excludes finger cavity walls and Rat Trap bond. We will feature **all** properties entered in the next bulletin and the oldest evidenced property will win one lucky surveyor the prize. In the event of a tie or any other form of dispute, we will ask Austin Baggett, Managing Director, NES Ltd to make the final decision. *Entries will need to be submitted by the 31<sup>st</sup> of May 2014.*

This could form quite a fun, useful bit of research. Let's see if we can build a map of the UK showing early examples of cavity walls. And remember, these properties could form the basis of a future case study for which we will pay you £50, so you could be double winner.



## Rising damp—a myth?

We thank Joe Malone for letting us publish his article on rising damp. Joe's article was first published at the [Surveying Property blogspot](#).

*"....the view that rising damp is a myth may cause Building Surveyors to form a view that it is not worth learning how to properly survey for rising damp and the supposition that rising damp is a common problem has led to a glut of poorly trained industry surveyors and widespread misdiagnosis due to over reliance on hand held electrical moisture meters."*



Source: [www.drywallandfloor.co.uk](http://www.drywallandfloor.co.uk)

My own level of expertise regarding rising damp stems from two years research carried out into rising damp that resulted in a dissertation entitled, *"The Efficacy of DPC Injection"*. I have been actively involved in surveying damp properties and more importantly, teaching damp investigation for a number of years now and think there have been a number of significant developments over the last ten years to merit an update on current thinking, controversies and industry developments.

There have been a number of commentators who have done nothing to move this issue forward over the last few years. In particular Jeff Howell's book, *"The Rising Damp Myth"*. Stephen Boniface, former Chair of the RICS Building Surveying Faculty, has also gone on record to state his belief that rising damp is a myth. Whilst I understand the sentiment behind their extreme view, it is perhaps a backlash to a DPC industry that promotes rising damp as a common occurrence.

During my research into rising damp, I came across a PCA examination paper for their National Certificate in Remedial Treatment from 2005 where a question started with the statement that, *"Rising damp is a common problem"*. Of course we know it is not a common problem but it demonstrates the second of two extremes when a rather more moderate approach needs adopting. Both views cause a number of problems:

- ♦ The view that rising damp is a myth may cause building surveyors to form a view that it is not worth learning how to properly survey for rising damp.
- ♦ The supposition that rising damp is a common problem has led to a glut of poorly trained industry surveyors and widespread misdiagnosis due to over reliance on hand held electrical moisture meters.

Even the poorly trained have a real sense of security gained in the knowledge that, even if you misdiagnose, the waterproof renovating plasters applied internally will give the appearance of a dry wall, thereby leading clients to conclude that your diagnosis was correct. After carrying out a substantial literature review on this question I can with confidence state two facts:

1. Rising damp does exist and is a scientifically proven phenomenon.
2. Although it exists, it is incredibly rare.

The more common academic view is that between 5% and 10% of damp properties will be affected by rising damp; my own research puts the incidence at less than 5%. (Note that we are talking about a percentage of damp properties here and not total properties in the UK.)

### So what exactly is rising damp?

The simple academic description would describe rising damp as *"an upward capillary migration of water in masonry"*. You will find the reference to capillary action in most text books and it is in this area that most text books are long overdue an update. Bricks contain capillaries or microscopic tubes that are

small enough to allow inter-molecular attractive forces between the liquid and solid surrounding surface; these forces allow a liquid to flow in narrow spaces against gravity. The problem here is that we now know that rising damp has two moisture transfer mechanisms, i.e. capillary action and diffusion.

It is generally thought that molecular diffusion (Fickian) is the moisture transport mechanism for water molecules moving through cement paste. Some of you may remember this from your school physics lessons but in simple terms diffusion is the spreading of solutes from regions of highest to regions of lower concentrations caused by the concentration gradient. It is the same for concrete floor slabs; water moves up through the floor slab by a process of diffusion and not capillary action.

### A new definition for rising damp

It is time to propose a new definition for rising damp and I would suggest the following description:

*"Rising damp is an upward migration of groundwater in masonry walls. It will act in combination on the masonry units and their separating mortar joints or it will act primarily on the mortar joints. The moisture transfer mechanism in masonry is capillary action whilst the moisture transfer mechanism within mortar is diffusion. The major moisture pathway for rising damp is the mortar perps so it can be stated that there are dual moisture transfer mechanisms for rising damp, diffusion and capillary action."*

Maybe not as snappy as the original definition but it clears up a number of issues and in itself can be used as an aid to diagnosis and specification.

Since we know that the mortar joints are primarily affected then it serves very little purpose in drilling and injecting brickwork without also treating the mortar joints. We need to qualify this statement because we have something of an anomaly when it comes to discussing the mortar joints.

*(Continued on page 11)*



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Tests were carried out at South Bank University a number of years back which failed to replicate rising damp in laboratory conditions. The tests were bound to fail because account was not taken for the fact that a new DPC mortar bed is impermeable to moisture. However, after 30-50 years of environmental exposure the mortar degrades and rather than providing an impermeable barrier, it then becomes the main moisture pathway.

For reasons of practicality and aesthetics we should have completely moved away from injecting brickwork and retrofit DPC injection should focus on the mortar bed and perp joints. However, we are getting ahead of ourselves because we've not yet discussed correct diagnosis.

*It makes no sense whatsoever to install a retrofit chemical injection to a property that already has a physical DPC installed unless you can evidence failure of the existing DPC; to my knowledge, no one has yet done this.*



A Negative salts analysis in a property diagnosed as having rising damp.

## Diagnosing rising damp

There is a view within the damp proofing industry that rising damp can be diagnosed with nothing more than a hand held electrical conductance meter and a great deal of experience. There is not a shred of scientific evidence to support this view and in fact it is well documented that hand held electrical moisture meters are of limited use due to the fact that they are calibrated for timber and not masonry. They are also prone to giving false positive readings for damp wherever they encounter salts, carbonaceous materials or backing papers such as foil.

You need to confirm that three conditions are present to definitively confirm a case of rising damp:

1. You must have a rising damp moisture profile. That is a profile that is wetter at the wall base but gradually decreases with height to a theoretical maximum height of circa 1.5 m.
2. You must prove that moisture is present at depth in the masonry and it is not enough to take surface readings from the plasterwork. You will need deep wall probes or a calcium carbide (speedy) meter to confirm this on site.
3. You will need to confirm that nitrates are present in the damp apex of your moisture profile. This will involve doing on-site analysis or sending a sample off to the labs. You might have noted that I have ignored chloride salts because these can be present in tap water or building materials. A positive test for nitrates confirms that the moisture has leached up from the soil.

Unless you can confirm each of these three conditions then, your diagnosis is based on guesswork. On the upside, due to the use of waterproof renovating plasters no one will ever know you got it wrong. It is a fact that the application of renovating plaster provides the perfect cover up for bad surveying practice.



Presence of a functional physical DPC has not affected the retrofit DPC installers action; Source: [www.dampbuster.com](http://www.dampbuster.com) & [www.buildingpathology.com](http://www.buildingpathology.com).

## Do physical DPCs fail?

This was a key question asked in my research and I could not find a shred of evidence to support the view that physical DPCs fail though I accept that not enough research has been done in this area.

I did note that cracked slate DPCs had been found but as one of my contemporaries wisely pointed out: "A crack is a crack and a capillary is a capillary", you will hopefully see the logic in this statement.

What is clear is that DPCs are regularly found to be bridged or compromised in some other way.

## How has the damp proofing industry changed in the last ten years?

It is fair to say that the process of retrofit DPC injection has been taken out of specialist hands over the last ten years. In the past, expensive equipment and specialist training was required for injecting silicate and stearate fluids into brickwork. These are still used, but the market has moved more towards the use of aqueous silane creams injected into mortar bed and perp joints.

The process is so simple that anyone with a reasonable degree of DIY skill can successfully carry out chemical injection. All that is needed is a hammer drill, a tube of your chosen water repellent cream and an application gun.

The cream is applied into 12 mm holes drilled at 120 mm intervals which will then diffuse into the wall via the mortar course to form a damp course to BS 6576.

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If it is installed above the timber floor joists then what good is it doing? This property had two courses of blue engineering bricks as DPC.



*(Continued from page 11)*

The drillings are simply made good with re-pointing rather than being sealed with plastic plugs, as used to be the case. Moreover, aqueous silane creams are far safer to use than the old types of injection fluids and come with far less chance of user error; anyone who ever used these fluids will tell you how they burned in contact with the skin.

It was not unusual for pressure injected fluids to be injected into voids within the brick and in any event these fluids were never designed to give full penetration that forms a continuous barrier to damp.

They worked by a process called viscous fingering which in basic terms means that you have fingers of waterproofing within the individual masonry unit rather than a complete barrier.

The best you could hope for was that you stop a fraction of water rising in the wall and restore moisture equilibrium. Moisture equilibrium is achieved when water is evaporating off the wall as fast as the damp is rising; thereby controlling any further rise in height of the damp. Silane creams are designed to give a complete impervious barrier to damp and on that basis alone outperform the old liquid systems.

Retrofit DPC injection has always been a two part management solution with the internal re-plastering being as, if not more important, than the injection work. Plaster becomes defective when chronic damp dissolves the calcium sulphate within the plaster, which make it extremely porous but salt contamination is the primary reason to hack off and replace the plaster. These salt contaminants are hygroscopic and will continue to absorb moisture from the atmosphere causing the wall to remain damp.

In the early days it was common for plaster to be hacked off and replaced with sand and cement render containing a waterproof additive that was then finished with a coat of Carlite finish. These days waterproof renders are rarely used with most contractors and specifiers opting for one in a range of waterproof renovating plasters that have become available.

For the record, I am neither anti damp proofing industry nor anti retrofit injection; I simply believe that the vast majority of damp buildings can be cured at source using nothing more than minor building works and the damp proofing industry would be best served by accounting for this fact.

I have both specified retrofit DPC injection and used it personally because pragmatically occasions do arise when you can do little else. What if a neighbour's yard has higher ground levels than yours and is draining against your gable wall? It is unlikely that lowering your neighbour's ground levels will be an option. A truly independent and competent damp surveyor will not hold with extremist views that rising damp is a myth but will also understand that rising damp is incredibly rare. It is this reasoned and pragmatic approach that will leave them best placed to appropriately specify works to achieve a cure or a management solution. Wherever possible, a cure should always be the preferred option and retrofit DPC injection falls firmly under the heading of management solution.

*Joe Malone BSc (Hons) ICIQB-Head of Asset Management-ALMO Business Centre Leeds.*



We have been working very hard to replace the now defunct Home Inspector (HI) Diploma and have two new qualifications in the pipeline: the Diploma in Residential Surveying and the Diploma in Residential Surveying and Valuation.

The first of these, the Diploma in Residential Surveying (Dip R Surv), is an almost direct replacement of the Home Inspector qualification. We will target this at people such as DEAs and others who want to progress in their career. It is not identical to the old Dip HI—there is a new element on energy.

The original qualification did include RDSAP but the new element will cover energy efficiency in a more practical sense and will include renewable technologies, etc.

People who already hold the Home Inspector Diploma might want to do this new qualification, but it is not essential as they will still be eligible to belong to the SAVA scheme and lodge Home Condition Surveys. But we recognise that some might want to up-skill and we plan to offer training and assessment on the new energy element only, therefore enabling some holders of the Dip HI access to the new qualification, if they want it. For people who missed the deadline on the old Dip HI (either because they did not finish in the time frame or because they are only now thinking about moving forward in their career) this new qualification in full will give them access to the SAVA HCS scheme.

The second qualification is the Diploma in Residential Surveying and Valuation, which has six units in total.

The first four units are identical to the Dip R Surv but the qualification has an additional two units that cover valuation. We are really delighted to be able to report that candidates who take this qualification will have direct entry to AssocRICS, subject only to taking an Ethics module delivered by the RICS (all AssocRICS applicants have to do this).

The Dip R Surv will entail the same amount of work as the old HI qualification. It will be a Level 6 qualification. For someone who already has the HI qualification, is active as a surveyor (not only as an energy assessor) and wants to gain the Dip R Surv and Valuation we anticipate about six months hard graft to get the valuation units, plus the new energy element. The best analogy is that the Dip R Surv is the equivalent of a degree and the additional valuation units the equivalent of a masters.

It is likely that we will 'parcel up' both the learning and assessment into chunks or 'modules' to give as many people as possible access to these new qualifications.

*(Continued on page 13)*

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We plan to start selling modules of training and assessment in the New Year with a view to delivering in March/April.

As far as costs are concerned we are still working on the development of both the training and the assessment modules and cannot therefore give final costs at present. But to give an indication: for the whole Dip R Surv for a new comer we anticipate fees similar to those of the Fast Track course.

For a Home Inspector looking to only upgrade to the new qualification we anticipate fees along the lines of a several CPD days.

For a Home Inspector wishing to do the Dip R Surv and Valuation we anticipate fees similar to that of a masters course. At this stage we cannot be more specific as there are still so many unknown factors. However, we are very excited about the possibilities that these new qualifications offer, both to our existing surveyors and to attract new surveyors.

## RPSA recruiting new members



The Residential Property Surveyors Association (RPSA) is recruiting new members. The RPSA is the professional body for surveyors who hold the Diploma in Home Inspection (DipHI) and the soon to be launched diplomas in Residential Surveying (DipRSurv) and in Residential Surveying and Valuation (DipRSurvValn).

The RPSA provides a number of benefits to its members which include:

- ◆ Responding to government and other consultations and providing evidence to commissions. Recently these have included responding to the Ofgem consultation on signing off hard-to-treat-Cavities under ECO and providing written evidence to the Independent Commission on Valuation. Oral evidence will be provided to the Chairman of the Commission, Dr Oona MacDonald in mid-October. There is a potential role to play for those holding the DipHI in both of these areas.
- ◆ Providing training courses, particularly on marketing and selling, and holding an annual conference, and providing a forum for exchange of views and expertise on the members' only section of the new RPSA website.
- ◆ Promoting awareness of the Home Condition Survey with property professionals, particularly conveyancing lawyers and estate agents.
- ◆ Promoting the use of surveys by home buyers who mistakenly believe that lenders valuations speak of the condition of a property.
- ◆ Operating a panel for members through which survey instructions are offered.
- ◆ Developing new lines of surveying business which includes opportunities with companies such as Sustainable Property Assessments (SPA) which provides sustainability reports on commercial properties and Watertight International who undertake surveys of homes for flood protection measures to be installed.
- ◆ Providing mentoring and accompanied surveys.

The RPSA is a not-for-profit professional body, being a company limited by guarantee run by an appointed Council with an outsourced secretariat.

If you are interested please contact [info@rpsa.org.uk](mailto:info@rpsa.org.uk) or call 08714 237189 (please note that SAVA cannot deal with membership of the RPSA).



SAVA, The National Energy Centre  
Davy Avenue, Milton Keynes, MK5 8NA  
Web: [www.nesltd.co.uk](http://www.nesltd.co.uk)

### About our bulletins

We trust you find this edition of the SAVA technical bulletin useful. If there are any areas you would like to see covered in future editions drop us a line at [bulletins@nesltd.co.uk](mailto:bulletins@nesltd.co.uk).

All editions of the bulletins and an index are available in the Useful Documents section of NES one.

**Technical Support:** 01908 442105 (8am–7pm Monday–Thursday, 8am–5pm Friday, 10am–4pm Saturday); [support@nesltd.co.uk](mailto:support@nesltd.co.uk)

**Support Website:** [support.nesltd.co.uk](http://support.nesltd.co.uk)

**Membership Services:** 01908 442277 (9am–5.30pm Monday –Thursday, 9am–5pm Friday); [membership@nesltd.co.uk](mailto:membership@nesltd.co.uk)

**Compliance:** 01908 442288 (8am–7pm Monday–Thursday, 8am–5pm Friday); [compliance@nesltd.co.uk](mailto:compliance@nesltd.co.uk)

**Training enquiries:** 01908 442240 or email [assessment@nesltd.co.uk](mailto:assessment@nesltd.co.uk)

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