Dampness in Buildings,
The Basics

Dampness, who is this article for?

The following article looks first at the basics of dampness in buildings giving a non-technical overview for the layperson that has dampness problems or a particular interest in this area. We feel it would also be of use to a student of building surveying, architecture, building or estate management etc. who may be studying on one of the many property courses available today.

Dampness Basics

Most of us have at some time experienced dampness in a property, normally in the form of condensation when a long shower or bath has been taken and we have thought little of it other than to open a window. Condensation is the most common of the three forms of dampness, the three are:

1. Condensation
2. Rising Damp
3. Penetrating Damp / Lateral Damp

Condensation

Condensation is a form of dampness that is visible on a surface and is where the relative humidity in the air is increased by a shower, a bath, washing and drying indoors without suitable ventilation, or generally a lot of people in a property. Once this moisture carrying air hits a colder surface, such as a window or a wall, it deposits the water or dampness onto the surface.

Condensation Problems

Condensation can leave unsightly staining and if it repeatedly occurs it can cause deterioration to finishes.

What is Condensation?

In its simplest form condensation can be detected by establishing that the dampness is on the surface of the material, such as a wall, and when readings are taken within the wall it gets dryer. We say in its simplest form' because condensation can also occur within a structure; a simple example of this would be within a chimney flue, where sometimes damp patches can be seen on a chimney breast.

Interstitial Condensation

A more complicated example would be interstitial condensation; this is where dampness in the form of condensation occurs within a structure. An example of this that we were involved in was dampness within the structure of a sports centre roof, which was occurring over the swimming pool area. Unfortunately a product known as woodwool slabs had been used, which was common in the 1960s and 1970s, and is very much like chipboard (glued pieces of timber). Unfortunately it was located over the swimming pool and this, together with the interstitial condensation, meant the structural integrity of the woodwool slabs had broken down.

Commonly Found Condensation

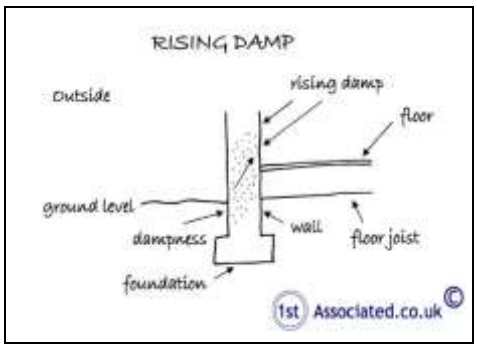
Going back to the more commonly found condensation on a wall or window we have found the best way is to increase the air circulation. This may be as simple as opening a window in the morning or adding large humidity controlled extract fans.

Some areas may also suffer when cold meets warm such as in a roof space which is well insulated and where condensation may form on the underside of the protective underlayer, often known as the sarking felt or underfelt. In such cases a heater should be added to provide a

background heat. We have been in roofs where literally the condensation is dripping off the protective underlayer.

Rising Damp

What is Rising Damp?



Another form of dampness is rising damp which is where water is literally drawn up by capillary action into the wall. Typically, although not exclusively, a brick wall will have rising damp to approximately a metre in height.

Different types of construction, such as stone construction or where the property sits on a sloping site, may have slightly different readings, but in our experience generally rising damp rises to about a metre.

Rising Damp Problems, The Effect

The effect of rising damp is often in the form of deteriorating paintwork or rot to the skirtings and the timber floor. We would always recommend the opening up and an inspection of what is known as a suspended timber floor system. The other sign of course is a damp and musty smell.

Is Rising Damp the Problem?

Many would argue that rising damp is not a particularly bad problem, certainly not as bad as many of the companies treating it would lead you to believe. All properties need an element of dampness and you should be aware that many of the specialist companies are simply selling their treatment and when you have a surveyor from such a company he is affectively their salesperson. This is why we have started offering independent advice, as surveyors, where our aim is to give you the correct solution to the problem.

Rising damp problems, the cause

Rising damp in modern properties

Let us define modern properties as anything built after 1877 when model by-laws came into force following the 1875 Public Health Act which required some form of damp proof course to be built into a property. So, we are assuming a modern property, in this case, will have had a damp proof course built-in as it was constructed.

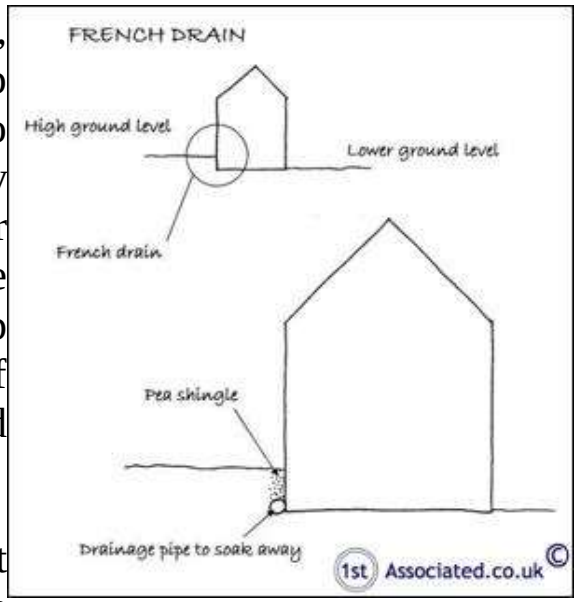
Over the years there have been various different types of damp proofing materials.

Rising Damp and Slate Damp Proof Courses

Rising damp can be caused due to a breakdown of the damp proof course, particularly in properties built from around the war years. Before this slate damp proof courses were used and dampness could by caused if there has been movement in the property which has resulted in the slate damp proof breaking. In this case a damp proof course should be inserted in the damaged area or a chemical injected damp proof course (please see our comments about specialist damp proofing companies).

Rising Damp and Ground Level

Most commonly, in our experience, with modern properties with a damp proof course the problem will relate to the level of ground outside. This may have built up naturally, as the flower beds have been gardened over the years and has then bridged the damp proof course (there should be a gap of 150mm two bricks between the ground and the damp proof course externally).



Very commonly we are finding that patios, driveways or decking has been

added, which again has allowed the damp proof course to be bridged. In other words the patio, driveway or decking has provided a way for the dampness to get past the damp proof course. To resolve this problem you need to amend the drive, patio or decking and allow the wall to dry out, which will happen in due course.

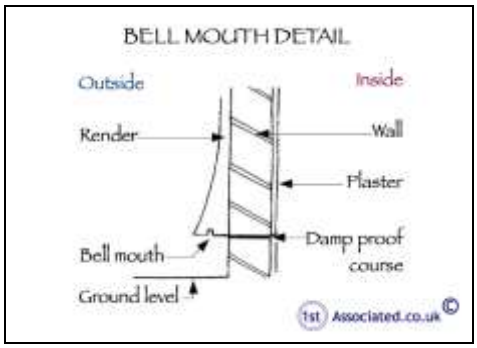
We commonly recommend that a French gulley is added along the side of the property, which is, in its simplest form, a pea shingle gulley (with two bricks between the ground level and the damp proof course) which allows the water to run away. In its more complicated form it has a perforated pipe at the base which feeds into your drainage system to take the water away.

Rising Damp, is it really Rising Damp?

On occasion we have seen rising damp blamed for the damp but when we have carried out an investigation we have found it to be something quite different, such as the gutters overflowing or the downpipes leaking. The problem with cast iron gutters and pipes is that they can crack and rust and with plastic gutters and pipes the problem tends to be that the gutters become blocked with moss, often off of concrete tiled roofs, and then the rain overflows. It can also simply be bad workmanship where there have not been enough brackets added to the guttering or the downpipe and rainwater discharges down the building.

We have also heard it said that it may be an old damaged pipe, but in our experience we have never come across this particular problem. We are sure that if you ask any experienced Building Surveyor what else it could be other than rising damp you will get a similar list. This is also a good way of checking that whoever you ask to report on your potential rising damp knows what they are talking about.

Rising Damp and Render Problems



Also on this age of property where rendering has been used as the external finish, dampness generally tends to be due to the lack of render detailing at ground level. This where, rather than a bell-mouth detail, the render travels down to the ground and even if there is a damp proof course the render gives the dampness a way to bypass the damp proof course. In such situations you simply need to add a bell-mouth detail to the base of the render at the appropriate level.

Rising Damp in Older Properties

We would define older properties' as being those built before 1877 when, if you recall, the model by-laws required damp proof courses to be added, although in our experience with the building industry things tend to take a while to change. Whilst older properties do have the same problems as those noted above, they also have some of their own.

Rising Damp in Older Properties with High Ground Level

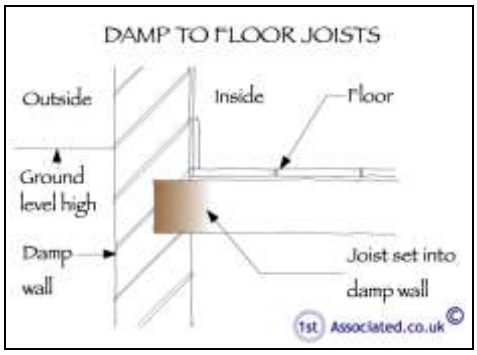
As mentioned, where the ground level has been increased by flower beds or by a patio, a drive or decking this has taken the damp proof course above the ground level internally and allows dampness to come in. Older properties tend to be able to cope with some dampness. In pre-war properties they will rarely have had a damp proof course built in and it is part of the character of an older property that dampness is allowed into the walls and then dissipated out of them please see the Dampness Technical article that we have also produced on dampness.

Rising Damp Causes Deterioration

The effect of excessive rising damp in an older property comes in the form of deteriorating plaster, flaking paintwork, deteriorating

skirtings and wooden floors and damp smells. It can cause far more damage in an older property as many of the elements are wood. Equally, the way older properties are built they were usually over designed and can cope with some changes.

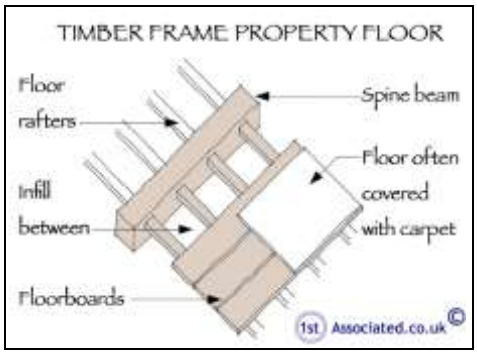
Rising Damp Causing Rot to Joist Ends



One of the biggest problems with rising damp in older properties is dampness being caused to the joist ends, particularly if there is a cellar or a suspended timber floor.

The good Building Surveyor will carry out various tests to see if there is deterioration in this area. Some of the tests can be carried out without opening up the floor, but in older properties we would always recommend that the floor is opened up and each joist is examined. Repair will be on an individual basis.

Rising Damp Causing Deterioration to Floor Plates and Bonding Timbers

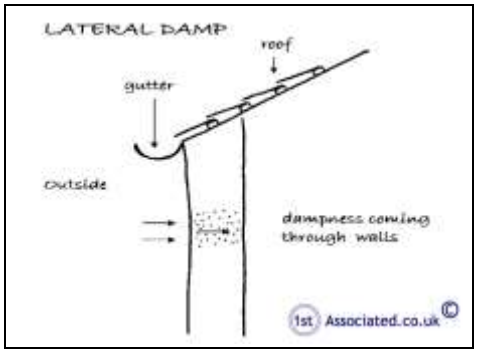


In older properties timber forms the skeleton frame of the structure. As you can imagine, in a Tudor property, one of the biggest problems is to the floor plates at ground level where the dampness can cause rot. Often in our experience these have been partly replaced over the years which, unfortunately, if this is carried out incorrectly it can cause even further problems.

It is the skill of the Building Surveyor during his examination and his knowledge of the type of properties and the repair methods available are where savings can be made. We very much believe in SPAB's (the Society for the Protection of Ancient Buildings), ethos of saving as much of the original building as possible and this is what we would do when we carry out such work. See www.spab.org

Lateral Dampness / Penetrating Dampness

Lateral Dampness, What is it?



Lateral dampness, also known as penetrating dampness, which probably explains it better, is dampness that comes through the wall. Often lateral dampness can be mistaken for rising damp if it is at low level and condensation if it is at high level.

Let us look at the different causes of lateral dampness.

Dampness Caused by Defective Roofs, Gutters, Downpipes and Hopper Heads

Dampness caused by gutters is known as lateral or penetrating dampness. It can be for many reasons; in older cast iron gutters it can be due to cracks and rusting of the guttering that has allowed water to be discharged down the wall, the wall then soaks up the dampness and this is visible inside. A good surveyor should be able to check and confirm if this type of dampness is lateral dampness rather than rising dampness or condensation. They should be able to carry out a close up inspection of the guttering and downpipes either using binoculars, digital zoom lenses or long ladders, depending upon the type of property they should adapt the method used.

Rainwater Overshooting the Gutter

This is technically known as ‘surcharging' and is where the roof discharges rainwater into the guttering in such a way that it overloads it and then discharges down the wall below. This can often occur where extensions have been added or roof alterations have occurred, or even when the original guttering was not sufficient or has been replaced by the wrong sort of guttering.

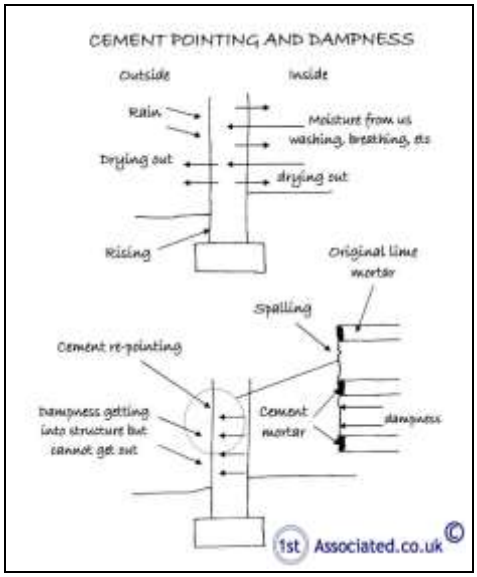
All of these lead to the problem of the rainwater discharging down the wall, which then causes penetrating or lateral dampness in the

property. This in turn can cause a variety of problems when it is at what we would term ‘high level’, and can result in anything from the fascias and soffits rotting allowing birds into the roof, it is surprising what damage this can cause particularly if you get pigeons in the roof. It can also cause, in extreme cases, damage to the rafter feet (these are the very ends of the rafters) or deterioration to what is known as the wall plate, which is the timber at the very top of the walls; both of which can then in turn cause problems with the roof itself.

In many property problems there are a combination of issues which starts with the simplest thing.

Dampness Caused by Cement Pointing

We could have had many different headings for this section, such as ‘lime every time' which is the Society for the Protection of Ancient Building's saying, meaning that on older properties you should use lime mortar. This is for a variety of reasons, but for the purposes of this article, looking at penetrating or lateral dampness it particularly means the problems that can occur to the wall if it is not allowed to breathe.



One of the most common causes of this is repointing with a cement mortar where there was once a lime mortar. This not only stops the walls from breathing it also causes deterioration to the face of the brickwork or stonework. We would always recommend that a lime mortar is used every time, both to the pointing externally to the brickwork or stonework but also to the plaster internally together, we would add, with a suitably emulsion based paint. We have in the past seen modern plasters used and modern gloss, oil based and plastic based paints which seal the inside of the property and cause dampness in isolated areas.

Deterioration to the Brickwork, also known as Spalling

We have given this a separate heading, although often the cause of the problems is the cause of the use of cement mortar, as mentioned above. Cement mortar does not allow the water to drain down the joints like it does on a lime mortar finish, meaning that it travels over the surface of the brickwork and causes deterioration to the face of the bricks. This in turn causes shaling or spalling which then produces a concave brick, which in a worst case scenario can then be repaired (but it is a bad repair) with a cement covering, which in turn increases the problem. Please see our comments above regarding ‘lime every time' on older properties. It is very important that the mix of the mortar is appropriate to the brickwork or stonework.

Cracking in Render Causing Dampness

Another cause of lateral dampness or penetrating dampness is cracking to the brickwork. We have found that horizontal cracking or vertical cracking or indeed raking cracking can all allow dampness into the property. It is a combination of the type of crack and the location. For example the elevation of the house that gets the prevailing wind and therefore gets wind driven rain will be a lot damper than the wall on the sunny side of the house. Also, if an area of the house is kept in the shade again this can cause problems. A good surveyor should be able to identify this.