

CONDENSATION

AN UNNECESSARY EVIL?

By **Stuart Hallworth**



Landlords in the UK will all have been affected by some kind of damp problem in at least one of our houses at one time or another. The risk of receiving a damp-related tenant complaint is now probably higher than it's ever been, owing to high-profile cases broadcast in the media.

Dampness enters buildings from all directions, and older houses are much more vulnerable due to the nature of their construction. Tenants commonly assume that observed dampness comes from the exterior of the building, therefore the landlord must be at fault. Sometimes that's true, but in most of the damp cases I've been asked to assist with, the source of dampness is from inside the building, from the environment created by the tenant. That's Condensation.

Where does Condensation come from?

Naturally, air contains moisture in the form of vapour, which will condense into liquid form (i.e., water) on any surface that has a temperature below a certain point. This is called the 'dew point'. The colder the surface, the greater the likelihood condensation will form. Likewise, the more vapour the air contains, the greater the amount of condensation will be produced. It's all natural, as nature intended.



Condensation droplets on window.

Why is Condensation a problem?

It's still a form of damp. Any dampness in habitable dwellings has the potential to cause ill health. When the source is condensation, toxic deposits are also created, which probably explains why at least one of those high-profile cases in the media involved a fatality.

If that wasn't worrying enough, damp is one of three problems that virtually all defects with the structure of the building stem from. Damp leads to decay in various forms. A timber component decaying might be a structural element, such as a joist, lintel, or beam, therefore the decay can lead to structural movement. This is regarded as the most serious type of building defect. It's costly to remedy, but dealing with timber decay can be just as expensive to deal with, depending on what type it is and how much of the building is affected. Non-

timber elements of the building can also decay, including plaster, cement, brickwork, and metal components. A condensation problem can lead to all of these.

How do you know it's Condensation?

A big 'tell-tale' sign that damp is caused by condensation is the appearance of mould. That's where the toxicity comes from. When the tenant complains of damp and you test the mouldy surfaces with your moisture detector (damp meter), often they will be dry. Condensation develops when vapour is produced, so if the vapour sources have ceased by the time you visit the property, the condensation could have disappeared.

It's different when the source of damp is the ground (rising damp). Those areas will not readily dry out, even in summer. If the source is through the structure of the building (penetrating damp), it may take a long time to dry out, and that assumes prolonged dry weather like we've experienced this year. At any other time, penetrating damp usually gets worse until the source is dealt with.

Mould on wall



Mould can appear on surfaces that have become damp from rising and penetrating sources if the dampness has reduced the temperature of the affected area to below the dew point. This means that a damp patch may not have been caused by condensation, but has attracted condensation subsequently due to its colder temperature.

Why some tenants create Condensation problems

Consider the situation when a new tenant moves into a house, then complains about damp a few months later. Yet there were never any dampness issues during previous tenancies. You visit the property and find the walls streaming. Black mould spores are widespread. That happened to me in a modern house, built in 1985, which even had cavity wall insulation.

My tenants had several large cooking vessels on the hob, boiling away. They had moved extra family members into the house without my consent. Now there were three adults and two children living there, but it had only two bedrooms. Wet laundry was drying on the radiators, and all the windows were closed. Does this sound familiar? Tumble dryers that are not adequately vented to the exterior of the building really exacerbate condensation, so look out for those especially.

These behavioural traits add excess warm airborne moisture into the interior of the property. Ordinary domestic activities, including cooking, boiling a kettle, drying and ironing clothes, bathing and showering, all create lots of water vapour, and if the windows are closed, it's trapped inside the house. Virtually every surface will be cooler than the warm, steamy air, so condensation forms everywhere, followed promptly by black mould.

Some tenants are more frugal than others, especially if the rent takes up a large portion of their income. They are in automatic money-saving mode. They minimise the amount of time the heating system is activated, perhaps for just an hour in the morning and a couple of hours in the evening. That's not enough to warm up the whole house and its

contents. Objects in the room, the walls and ceilings never get a chance to warm up properly, so stay cold and below the dew point, becoming condensation magnets.

Cost-conscious tenants also try to save money by conserving heat within the house. They keep windows closed, do not use fans, and sometimes block up vents. Air circulation drops and vapour-laden moisture remains within the building, making condensation worse.

An often-overlooked concept of condensation is air pressure. As airborne moisture increases, so does air pressure inside the room where it is being produced. Air then moves around the building as far as it can to re-establish air pressure equilibrium. This means the harmful moist air may end up in the colder rooms, leading to mould growth some distance from the source of the problem. If the window in the room where the vapour is being produced is open, the warm, moist air will naturally exit the building, as the air pressure outside will be lower than inside. That's natural ventilation.

Now you can see why types of human behaviour have a big impact on the production of condensation and mould growth. Ultimately, they are responsible for the problem. Getting tenants to accept that and change their behavioural lifestyle can be complicated and is a whole topic on its own. Unfortunately, when the local authority receives a complaint from a tenant about mould, they will follow certain procedures and treat the complainant fairly, so the landlord may find themselves in the firing line.

When you have a good understanding of condensation, as a landlord, you are then in a position to identify the behavioural traits and counteract the complainant in a logical and professional manner.

Why some properties are inherently prone to Condensation problems

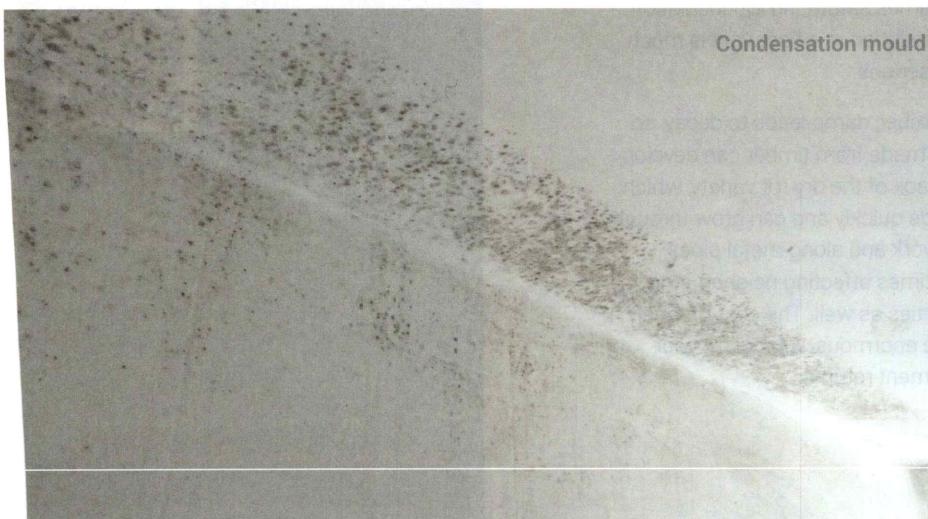
You know that condensation forms on surfaces that have temperatures below the 'dew point'. So, any surface at or below this temperature is going to be colder than the climate in the room. Insides of windowpanes are usually the first surfaces to fall below the dew point, but the inside faces of external walls, undersides of ceilings, and stored possessions in certain locations in the house are also prime targets for condensation. Older houses of solid wall construction are relatively poor retainers of heat. The inside faces of the external walls can become inherently cold during the winter months and condensation will form. The same is true for top-floor ceilings if the loft insulation is inadequate.

Those older houses were designed to function in a fundamentally different way to modern houses. They were naturally damp due to the absence of damp-proofing and other design inadequacies. They were also very draughty from open chimney flues, badly fitting windows and doors, and unlined roofs, to mention just a few. Dampness could evaporate away, and airborne moisture-producing domestic activities didn't impact on the building as there was always air pressure equilibrium.

However, to make these houses acceptable for modern living, they get 'adapted', which amounts to a fundamental change to the way they were designed. Rising damp is unacceptable, so retrospective damp-proofing is carried out. This is often essential before the property becomes acceptable for mortgage lending. Coal fires are dirty, inconvenient, and inefficient, so they get removed and the open flues blocked up. When did you last see a functional timber-framed sash window? Most are now gone and replaced with uPVC double-glazing. What about the roof? Off comes the original covering and in comes a new alternative, with underlay beneath, to keep rainwater out. Gaps in party walls are blocked to prevent fire spread. These are all examples of modern adaptations to old houses. Unfortunately, each has removed a source of natural ventilation. Seldom are those sources replaced. The old house is now effectively sealed, which is a great environment for condensation and mould.

How the property is heated is an important factor. Ideally, radiators should be positioned in the naturally coldest parts of the room. Usually, that's just below the window.

Condensation mould



When Condensation is the fault of the landlord

The landlord usually holds responsibility for the maintenance and repair of the house. Many older houses have constructional features that present inherent cold spots, which behave as condensation traps. Even if there is a good balance between heating and ventilation, condensation and mould may still be a problem in some places. Examples of inherent cold spots include:

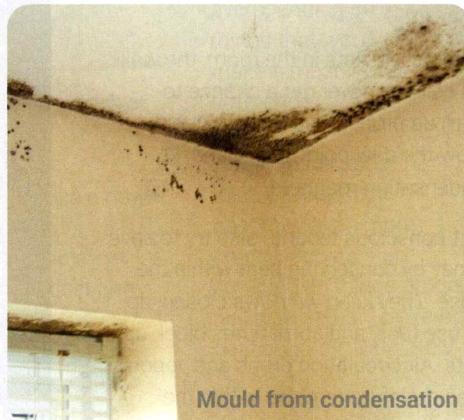
- (a) gaps in loft insulation above top-floor ceilings;**
- (b) uninsulated sections of sloping ceilings beneath roof slopes;**
- (c) uninsulated flat roofs;**
- (d) thin 'single skin' external walls;**
- (e) gaps in external wall insulation;**
- (f) cupboards fitted against the insides of external walls;**
- (g) unvented voids beneath floors;**
- (h) inverted disused chimney flues.**

These all require some action by the landlord. Some are easy to address, but others are not.

Loft insulation is probably the easiest thing to deal with. Any gaps create cold spots on the ceilings. There should be a uniform layer of insulation laid to 270-300mm depth over the tops of the ceilings. When improving insulation, be sure not to block any roof ventilation, otherwise condensation will form in the cold roof space, with further consequences.

If the property has sections of sloping ceiling under the roof slopes, there may not be any insulation between the ceiling and external roof covering. Solid block insulation is needed in these locations, but inserting it and ensuring there aren't any gaps could be a disruptive job, either disturbing the roof covering or the internal plasterwork. The same is true for flat roofs, so the work is best done in conjunction with the renewal of the roof covering.

In old properties, single-skin walls can be anywhere and everywhere. The worst ones are full-height, gable-end walls, which have structural stability issues and penetrating damp as well as condensation. Smaller areas such as side



Mould from condensation

walls to internal passages, converted outbuildings, and feature recesses can be upgraded with insulation and a plasterboard lining on the inside.

External wall insulation is a topic in its own right. Most examples I've seen on domestic houses are full of inadequacies that introduce new cold spots on the inside, leading to patches and strips of mould. Ill-thought-out workmanship also leads to penetrating dampness either straight away or in the future. (That's for a future article.) Cupboards fitted against external walls are very common. Think about bedroom wardrobes, chimney breast recess fittings, window seats, etc. These block the warmth from the heated part of the room and become cold inside.

Condensation and mould are not just problems on internal faces of external walls, but stored items inside the cupboards are liable to become damaged or destroyed by mould. Any enclosed void inside the house is a condensation magnet because it will be colder than the surrounding heated areas of the building. The common two are insides of disused chimney flues and spaces beneath floors, including cellars. Both types of voids must be vented with airbricks to allow air to circulate vertically up flues or horizontally beneath a floor. Otherwise, condensation inside the flue will make the chimney breasts damp and, in bad cases, the damp will pass into surrounding walls and ceilings, sometimes saturating loft insulation. Condensation in a floor void is much more serious.

Remember, damp leads to decay, so floors made from timber can develop rot attack of the dry rot variety, which spreads quickly and can grow through brickwork and along metal pipes, sometimes affecting neighbouring properties as well. The cost of repair can be enormous, wiping out your investment returns.

Devices that reduce Condensation

Fitting electric fans speeds up the expulsion of harmful, warm, moist air from the dwelling, but frugal tenants turn them off and say they can't afford the electricity. Modern, sophisticated humidity-detecting fans that cannot be turned off by the tenant are a better option. In my experience, they are very effective in reducing bad condensation problems. Always fit these devices as close to the production point of the airborne moisture as possible. If they are fitted too far away or in a different room, the harmful air is simply drawn into another part of the building, with a likelihood of making condensation worse.

Consider also positive ventilation systems if you have a property with a roof space. These are fan units mounted into top-floor ceilings, best on the landing. They blow air from the roof space into the habitable part of the building, increasing the air pressure and forcing the indoor air to move and naturally exit the building through airbricks and any other gaps to create pressure equilibrium. However, closed-off rooms, such as locked HMO bedrooms, will reduce their effectiveness.

MASH

I created 'Mastering the Art of Surveying Homes' (MASH) to convey my 25 years of active practice as a Chartered Surveyor to landlords, property investors, sourcers, and agents for their own use. It gives you the edge and ability to invest with CONFIDENCE, knowing what the defects are and how to deal with them.

The 2025 MASH sessions are running at the moment, through to the end of the year. If you're interested in joining in 2026, book a call with me for an informal chat about MASH 2026 using this link or QR code.

The course runs once a week, on Monday evenings, for two hours. All material goes on a membership site for you to review or watch later when you can't attend live. There's also 1:2:1 help direct from me if you need it.



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