# Rising Damp & Salt Attack

Rising damp on a painted brick wall in Norwood.

Rising damp exacerbated by hard cement render repairs.

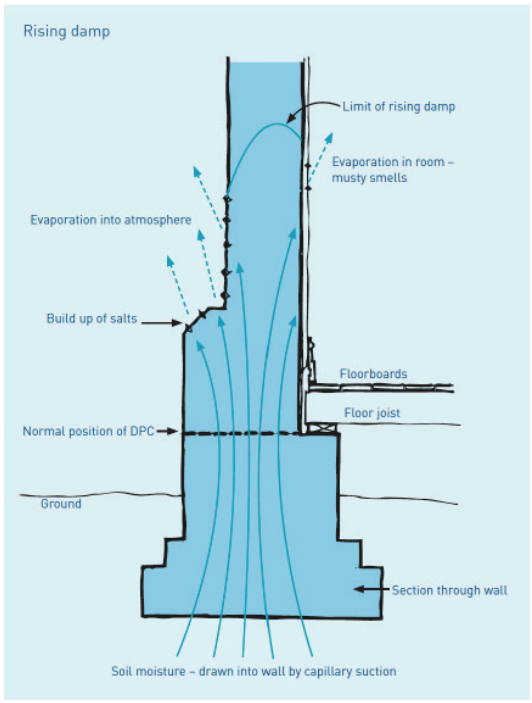
Rising damp is a common problem in Victorian and Edwardian houses in Norwood, Payneham & St Peters.

This Fact Sheet outlines the causes of rising damp and how it can be dealt with and managed. A more thorough discussion on damp can be found in the Further Reading list on the reverse side of this Fact Sheet.

## Rising Damp

Rising damp is moisture in the wall above the damp proof course, which evaporates out at the first easiest point and in doing so, causes deterioration in the wall surface from which it evaporates.

Damp is commonly seen internally as deteriorating plasterwork above skirtings and externally, by deteriorating mortar joints and failing stone or brick. The salts within the moisture are what cause the damage. As the salts dry on the surface, the crystals expand, causing damage to the surface.




## Understand Your Situation

Almost all houses were built with some form of damp proof course below floor level. Typically, this was a tar and sand course, usually still visible as a dark grey or blackish course in the brick work. Sometimes over fired bricks were used, or impervious stonework

The first thing to do in dealing with rising damp is to understand what the likely cause of it is. Once this is done, an appropriate course of action can be resolved.

Rising damp can be caused by a number of factors, including poor roof drainage, poor site drainage, built-up ground levels or paving levels adjacent to outside walls, inappropriate pointing or rendering of masonry, painted external walls, inadequate damp proof courses, nearby garden watering systems and leaking plumbing.

The starting point in assessing your situation is to consider the external environment to the walls where rising damp is evident. The following aspects should be considered:

- Is the roof properly drained? Are all downpipes discharging into an underground stormwater drainage system, or are they discharging at the base of the external wall?
- Is the ground level against the building grading away from the building so water drains away readily? Is there any ponding occurring near or adjacent to the wall?
- Has the ground level been built up over the original damp proof course? Is the original damp proof course clearly visible?
- Has the masonry wall been repointed or rendered with strong impermeable mortar, or painted with acrylic paint? Can the wall breathe properly? Can moisture inside the wall pass through easily?
- Are there any leaking drains or garden watering systems nearby?

## Housekeeping Measures to Minimize Damp

Some simple housekeeping measures to minimise rising damp are:

- Ensure ground levels/paving levels are set below the original damp proof course. Ideally at least 100mm of wall should be exposed below original tar-sand damp proof courses.
- Ensure downpipes discharge into a sealed stormwater system, not at the base of walls.
- Ensure ground levels and paving adjacent to outside walls drain away from those walls.
- Ensure older stone or brick walls are pointed with weak lime-based mortars, not strong impervious Portland cement mortar which could inhibit breathing. Masonry walls are designed to fail at the joints, not via individual stones or bricks.
- Ensure masonry walls are not rendered at the base with a strong impervious Portland cement mortar plinth to keep damp out. This only serves to trap moisture in the wall.
- Ensure old masonry walls are not painted, as this can trap the moisture and force it inside.

## Salts & Damp in Walls

In the case of older houses with damp problems, it is unlikely that the problem is new. The walls would have been absorbing moisture and salts for a long time, possibly even without any evidence of damage. Over time the salt content of the walls reaches a certain level, then the damage begins to happen. This could take two years or 100 years, depending on the walls, the moisture and level of salts in the moisture and soil.

Getting rid of these salts is difficult. There are several methods, some related to the procedures mentioned below and others independent. Removing the affected masonry is costly and often inconvenient. Applying a poultice to the wall surface (like a wet paper mache) will draw the salts into the poultice out of the surface of the walls. Sometimes a poultice needs to be applied several times. Another method is to render the wall with a very weak sacrificial lime mortar, which is often cheaper and easier. Both need to be removed and the plaster replaced once the salts have been sufficiently removed.

## Fabric Intervention to Alleviate Damp

If there is no damp proof course in the wall or the existing damp proof course does not appear to be working, then there are two recognised ways to install one.

The best way, which is also the most costly, is to install a new damp proof course by under-setting. This involves taking out sections of wall below the line of the DPC and then building it back with a new DPC in place. While this is slow and laborious, it works well and is considered the best way to install a new DPC in an old wall. While this will stop new rising damp, the wall fabric above it will still contain deposited salts from the decades of previous rising damp. This may continue to evaporate out in the first few years but should lessen with time.

The other common way to install a new DPC is to inject a chemical DPC into the base of the wall. This involves injecting chemical solution into the wall at close centres. It is quicker and more economical than under-setting and has the advantage of retaining the original masonry walls. However, not all walls can be injected, and sometimes it may take a few treatments to make the damp course continuous.

## Professional Advice

This Fact Sheet only outlines the key aspects of rising damp. The Technical Guide referred to will provide much more detailed advice.

If further information or advice is needed, owners of listed heritage places in Norwood, Payneham and St Peters can obtain free advice on rising damp from the Council's Heritage Adviser.

## Further Reading

- *Heritage SA – Salt attack and rising damp*
- *A guide to salt damp in historic and older buildings* (available online)

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