

Rain Penetration

Dampness is the most common and damaging cause of deterioration affecting old buildings, and rain penetration accounts for much of this. Basic preventative measures are often neglected, and problems compounded by misdiagnosis and unsuitable modern treatments.



Q. What's the definition of rain penetration?

A. In the context of buildings, rain penetration refers to the ingress rainwater above ground at various points in the external envelope of the construction, that is through roofs, walls, chimneys and openings such as windows and doors. This includes spillage from gutters and downpipes. Water penetrates buildings by various mechanisms, for example, gravity, wind pressure and capillary action. It not only damages the fabric but also creates unhealthy conditions for occupants, together with less visible problems like poorer thermal performance. Rain penetration is distinct from other forms of dampness, such as condensation and rising damp, which require different solutions.

Q. Isn't rain penetration an inherent problem with old buildings?

A. Not normally, but it is common, particularly due to neglected maintenance or previous inappropriate work. Exposed parts of buildings such as roofs, chimneys, parapets and sometimes south-westerly facing walls are most susceptible to moisture ingress, especially where access for maintenance is difficult. Something as straightforward as a slipped tile can cause significant damage, as can leaks from parapet and valley gutters not cleared of autumn leaves. Historically, walls were often given extra protection from the rain with

lime render (or possibly tile-hanging, weather-boarding etc).

Good weatherings such as projecting eaves, string courses and pentice boards were also provided. Dampness has been caused by the stripping of lime render from Victorian times onwards, or, as described below, application of incompatible later materials, including cement renders. Additionally, where patios and paths are laid up to walls, inadequate drainage or rainsplash commonly soaks them.

Q. How is rain penetration diagnosed?

A. Scientific analysis aids diagnosis but the human senses must not be undervalued. High electrical moisture meter readings at wall bases due to rain penetration are frequently misdiagnosed as rising damp and used to justify unnecessary damp-course treatment. Elevated readings can also occur in virtually dry walls, due to salt deposition from evaporation. Unlike with rising damp, green staining externally to walls, broken roof tiles on the ground and leaking gutters and downpipes are symptomatic of rain penetration. Tests to determine moisture within the wall thickness can help rule out surface condensation. Always employ an independent chartered surveyor or consultant, not a remedial treatment contractor with a vested commercial interest in encouraging over-specification.

Q. How can I control rain penetration?

A. Remedies must aim to cure dampness by addressing the cause or, failing this, managing it by treating the symptoms. In some cases, dampness can be considered insignificant and requires no remedy. Applying staged remedies can help accurately diagnose the cause of dampness. Before embarking on extensive work, therefore, the first step may entail nothing more than basic maintenance, such as clearing a blocked gully. Work should generally be like-for-like but modifications are sometimes justified. Where rain seriously penetrates an exposed wall, for instance, the reinstatement of a lime render or use of traditional tile-hanging, weatherboarding etc might be considered. Partial treatment at first floor level (including any gables) may be more acceptable, though, aesthetically than a wholesale covering. Alternatively, some circumstances permit the installation of a ventilated dry lining system internally.



Q. Will sealing old buildings help stop rain penetration?

A. No, this is normally disastrous. Old buildings need to 'breathe'. Whereas modern buildings rely on excluding water with a system of barriers, buildings that pre-date the mid-19th century are usually constructed of absorbent materials that any allow moisture that enters to evaporate back out - the 'raincoat' and 'overcoat' effects respectively. Attempts to seal old buildings with hard cement pointing and render, tanking, plastic-based paints, colourless water-repellent treatments and spray-on roof foams entrap moisture and are regular causes of deterioration. Ideally, such impervious materials should be removed but this may not be possible without causing further damage. Be wary of written guarantees, which are often loaded with 'get-out' clauses and may have no insurance backing. The right approach from your contractor coupled with good workmanship is your best warranty.