

THE TRADITIONAL PERFORMANCE

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...older buildings will function well if they are allowed to work as they were intended.¹

DISTINGUISHING BETWEEN TRADITIONAL AND MODERN

The performance characteristics between traditional and modern buildings are significantly different; in most cases it will be found that modern materials and methods of repair are incompatible with buildings of a traditional construction, as they cause or exacerbate problems of dampness and decay of the fabric. The intended performance of a building dictates the appropriateness, compatibility and nature of all repairs and alterations, including those already carried out and those that will be made in the future.

In a modern building the damage or failure of one its moisture barriers will lead to severe problems of damp penetration. In an old building prevention of the evaporation of moisture from walls will lead to similar difficulties. Hence the two building types need to be handled in completely different ways: modern buildings will be damp without a barrier to moisture because the economy of design does not provide a massive and absorbent structure but old buildings will become damp if an impervious layer is applied to them because this prevents water within the structure from evaporating. As the moisture content of the wall increases, the likelihood of decay also increases.²

The materials and methods of construction, and of subsequent repair and maintenance, have a direct bearing on the performance and the condition of a building. An appreciation of this relationship is therefore an

elementary requirement of any surveys of traditionally constructed buildings. A traditional building, its solid walls and its roof, need to 'breathe' whether it is listed or not.

'Breathability' (high porosity, high permeability). This group of characteristics also allows lime mortars to protect the other materials in a building by handling moisture movements through the building, protecting masonry materials from harmful salts. 'Breathability' greatly assists the drying out of buildings and the avoidance of condensation problems, which contributes to the comfort of people using the buildings.³

Most buildings constructed before the mid-nineteenth century were built with solid walls with no damp-proof course. With the exception of historic timber-framed structures, the walls of many traditional buildings are relatively thick, particularly in comparison with modern buildings built with thin cavity walls or lightweight timber frames.

The materials of construction were mainly porous, such as stone, brick, timber and earth. These were bedded using lime or earth based mortars and in many cases finished with lime or earth based external renders, with many traditional buildings being provided with protective limewash, that also served a decorative function. The external renders and limewash would have acted as a 'buffer' against the elements, by providing a physical but porous obstacle to extensive water absorption by the wall fabric itself. The render and limewash absorbs the rain until the conditions suitable for evaporation to take place are present.

Protection: In many ways soft lime mortars and paints (limewash) can be used to give protection to buildings, particularly from severe rain. They can act sacrificially to protect the structure.⁴

Traditionally, pointing and many renders had an open-textured finish, for example a 'harling' or roughcast render finish. The textured finish maximises the surface area of the pointing or render and therefore increases the potential for moisture to readily evaporate from the wall.

The performance of the building can be summarised as follows:

1. Moisture is allowed to enter the porous fabric – from rain and from the ground. Damp will affect the base of the walls and the ground floor.
2. The use of traditional porous materials in the construction, and subsequent repair and maintenance, allows moisture that enters the fabric to evaporate when the atmospheric conditions are favourable, such as on sunny and/or windy days.

3. Good ventilation through the roof coverings, poorly fitting windows and openings assists evaporation of moisture.
4. Fires in regular use draw ventilation through the building and provide background radiant heat.
5. A simple lifestyle produces small amounts of water vapour.
6. The levels of dampness in the building are 'controlled' by the ability of moisture to readily evaporate.

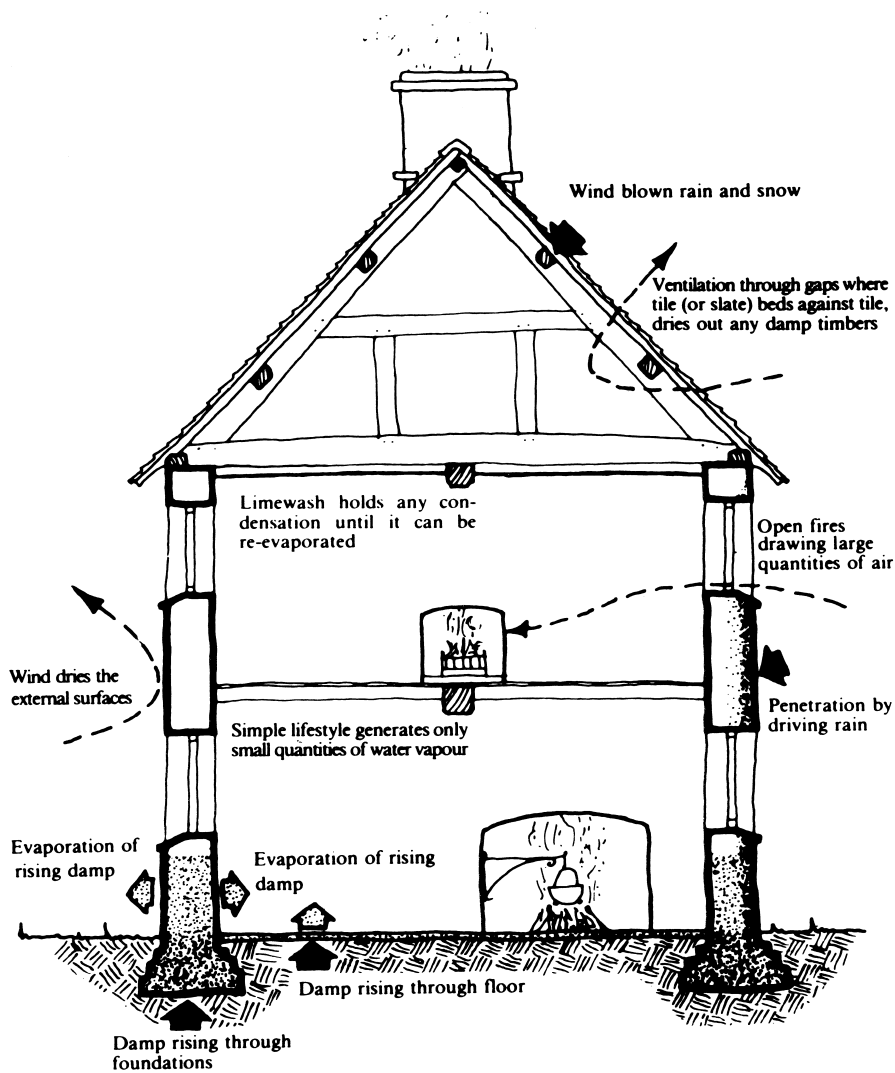


Figure 5.1 The control of damp in old buildings.⁵ (Kind permission of the Society for the Protection of Ancient Buildings)