DEFECTS IN BUILDINGS DUE TO

DAMPNESS

Subject: Building Construction & Technology – III
Topic: Dampness in Basement
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TYPES OF DAMPNESS

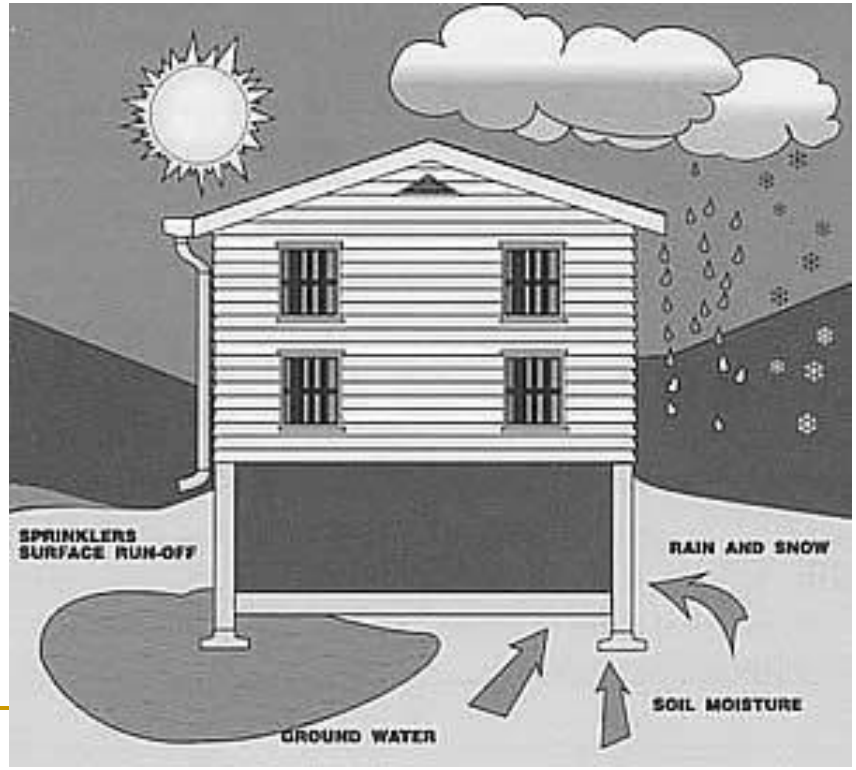
Rising damp or "salt damp" in brick walls and masonry .

Poor drainage .

Falling damp .

Horizontal penetrating dampness .

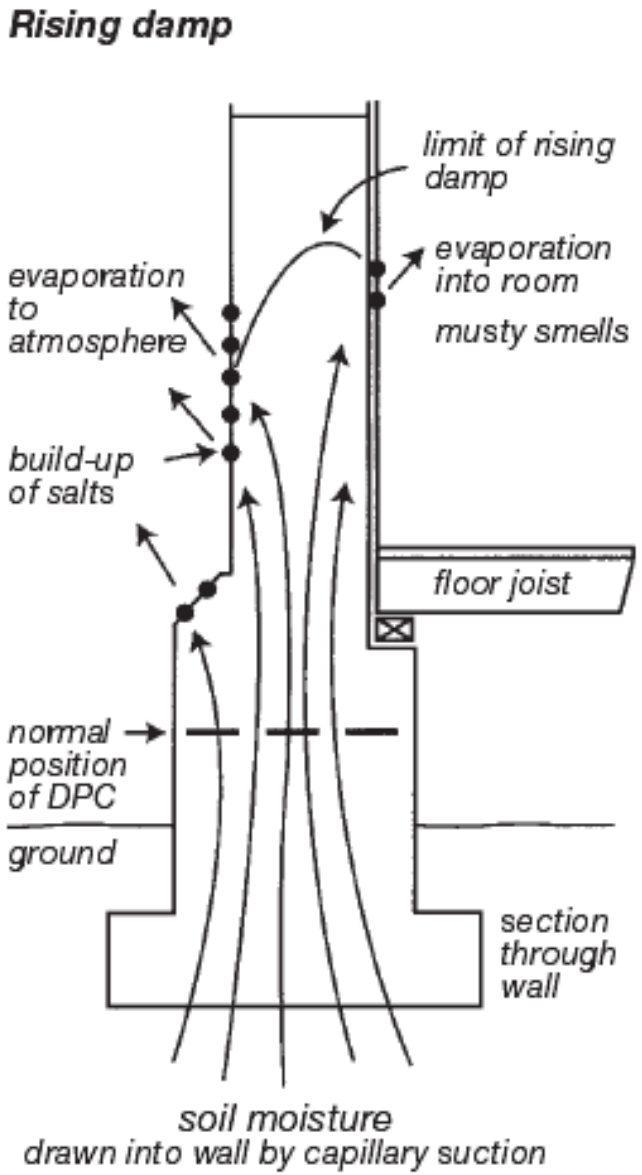
Condensation dampness .



RISING DAMP

Rising damp occurs as a result of capillary suction of moisture from the ground into porous masonry building materials such as stone, brick, earth and mortar.

The moisture evaporates from either face of the wall (inside or outside), allowing more to be drawn from below. The height to which the moisture will rise is determined by the evaporation rate and the nature of the wall. The normal limit for rising damp ranges from 0.5 to 1.5 meters above ground level.



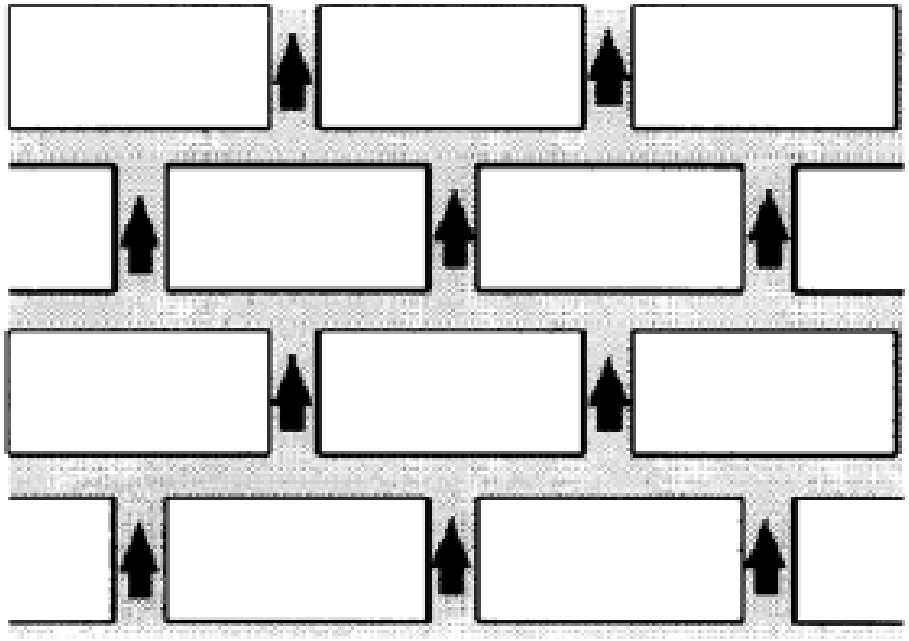


Figure 1: Water rising through mortar beds

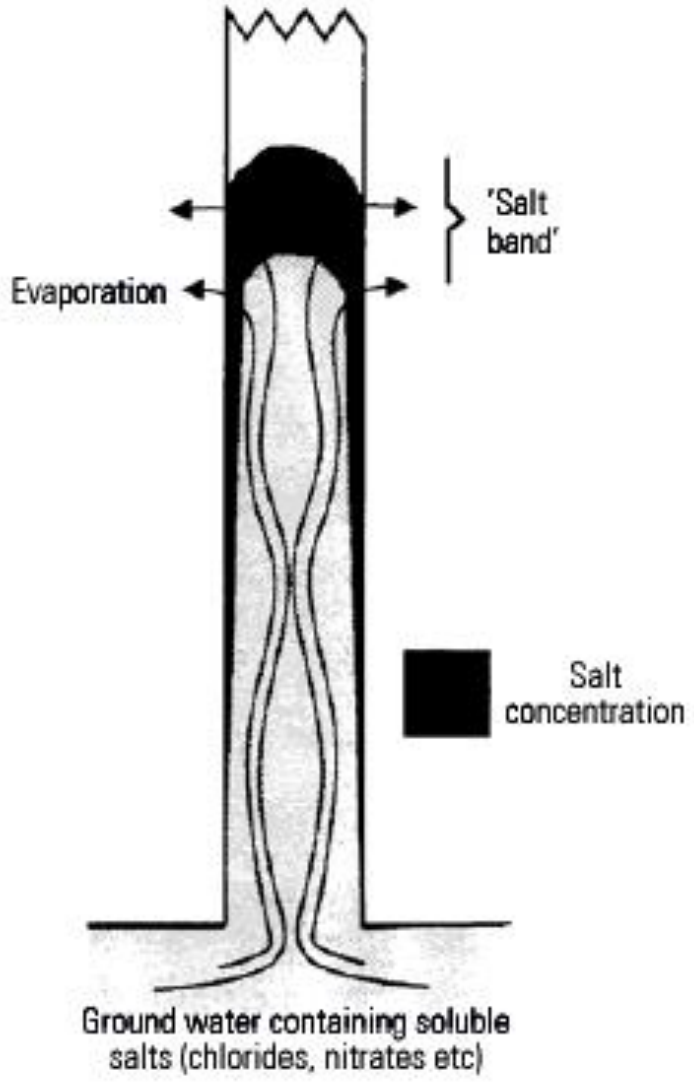


Figure 2: A rising damp complex

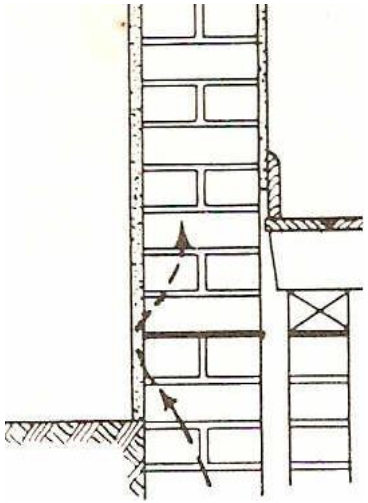
Rising Damp or Salt Damp

The nature of rising or salt damp

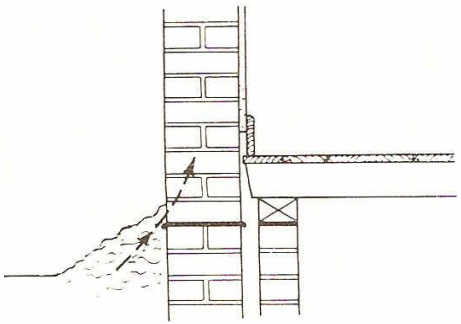
•Brick and masonry absorb water, so must be sealed off from contact with moisture and moisture-bearing substances like soil. If not, water will rise in the walls causing dampness. When the dampness evaporates it creates cold clammy conditions in solid brick houses and leaves behind the corrosive salts which were dissolved in the water.

•Serious damp problems can be due to breakdown of damp proof course or due to latter construction

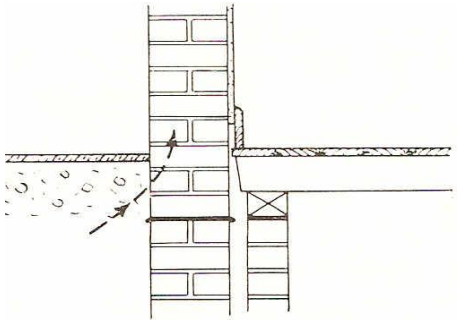
•Moisture can bridge its way in many way to rise



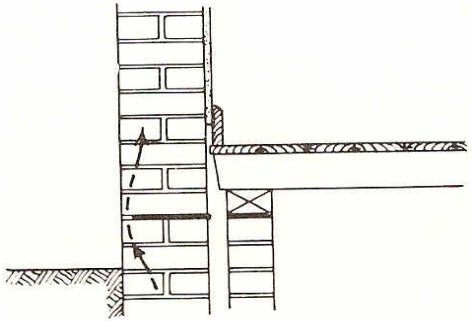
Bridging by mortar pointing.



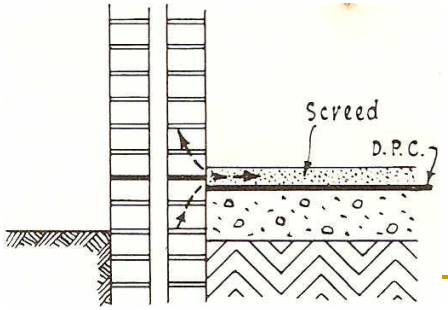
Bridging by earth.

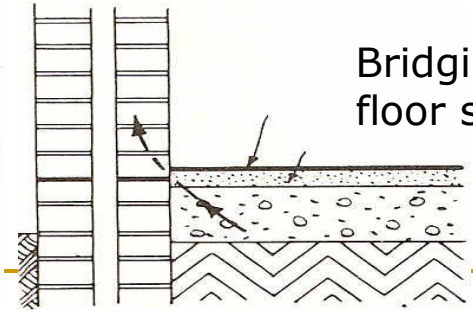


Bridging by path.



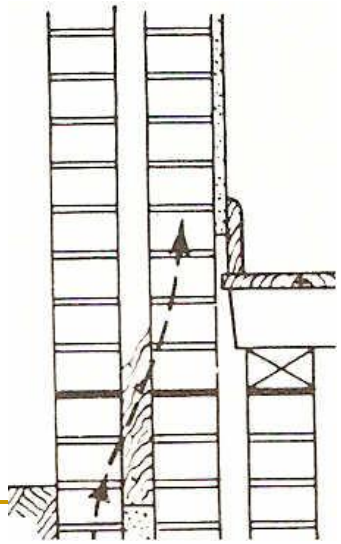
Bridging by rendering.





Bridging by floor screed.

Bridging by mortar dropping in cavity.

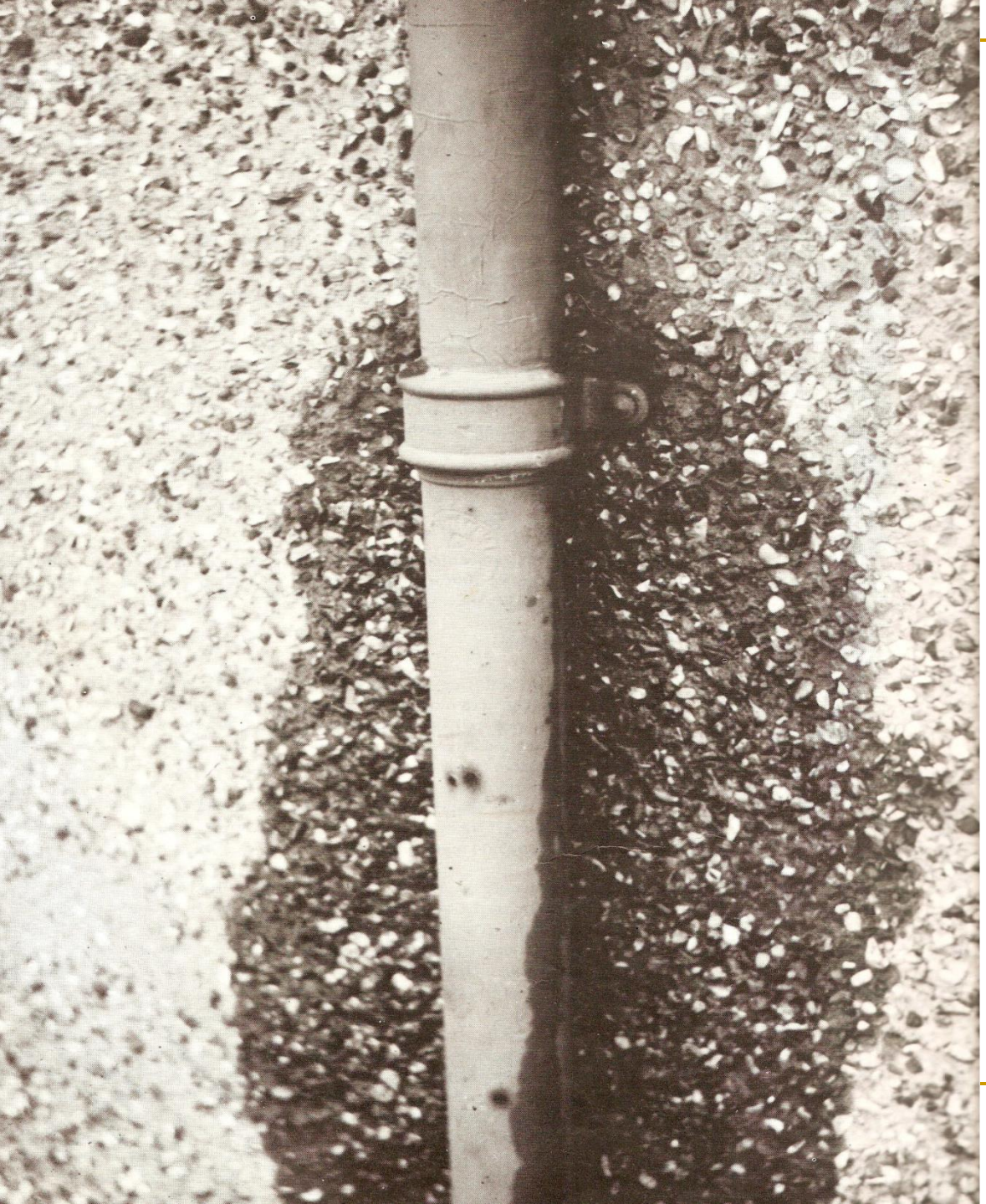


Poor drainage
Built-up garden beds, sloping ground or falling damp could direct water under the house. Drain this away via agricultural drains sloping away from the house, bedded in loose aggregate.

Falling damp
Examine water and storm water pipes, roofs, gutters and down pipes for breakages and leaking. Excessive dampness which is limited to localized patches in soils and on walls indicates this type of fault. Minor problems can be patched with bituminous tape or similar. If problems persist, refer to Archicentre's Technical Sheet on "Roofing and Guttering" and contact a licensed plumber for major repairs.

Horizontal dampness
Elementary horizontal dampness occurs when badly porous brick walls receive direct rain. The wall can be sealed by the application of a waterproof coating. Horizontal dampness becomes more important to remedy when it appears on the inside of the house. This phenomenon occurs in single brick houses or in double brick houses where mortar bridging the cavity has transferred the dampness from the outer wall

Condensation dampness
Condensation in the home results from damp air. In most cases, condensation will lead to mould growth and unhealthy living conditions. Water vapor-producing fixtures like clothes-dryers, stoves and showers need to be ventilated, preferably fan-forced to the exterior of the house.

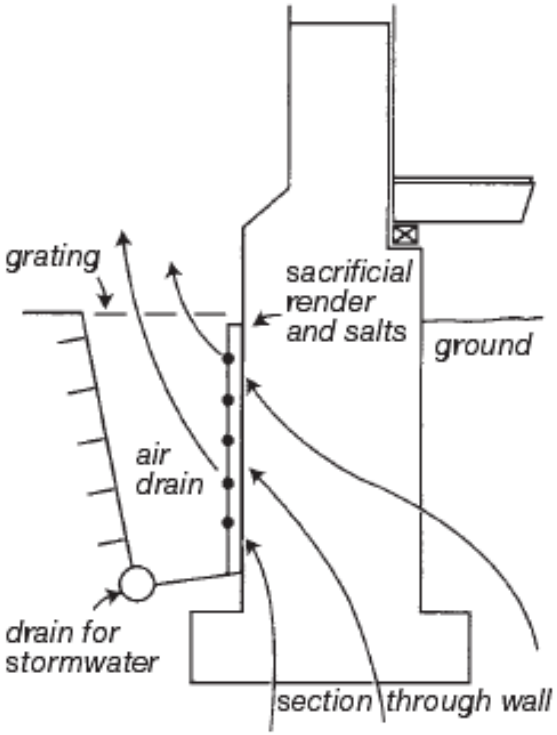


Poor drainage

Ventilate to remove the moisture

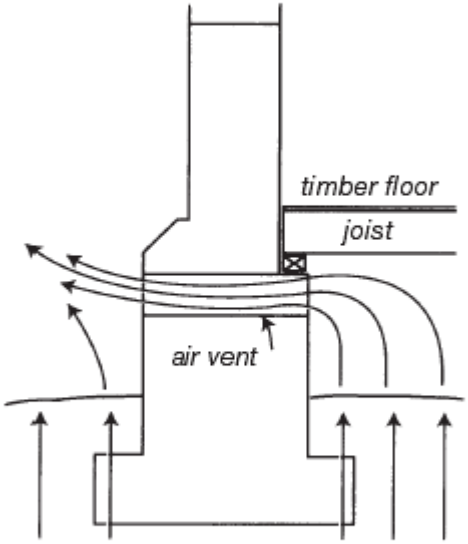
RISING DAMP GIVING RISE TO MOULDS

Air drains: a control measure



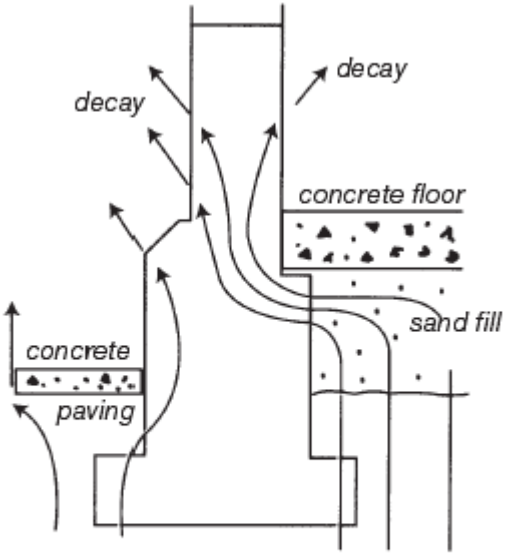
By lowering the zone of evaporation, rising damp can be controlled to less visible parts of the wall. Valuable internal plaster can be protected and the risk of fungal rot decaying timber floors reduced.

Why concrete-on-fill floors can cause rising damp



Before

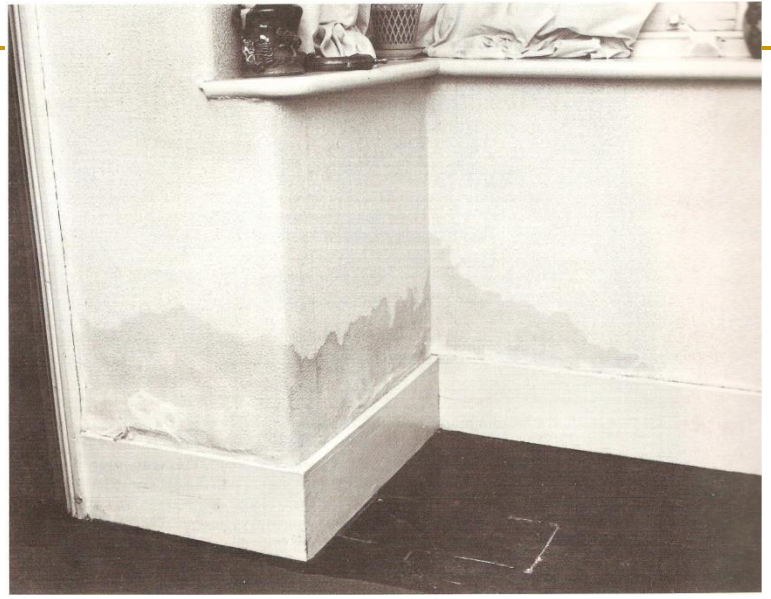
Well-ventilated underfloor space allows soil moisture to evaporate to the open air

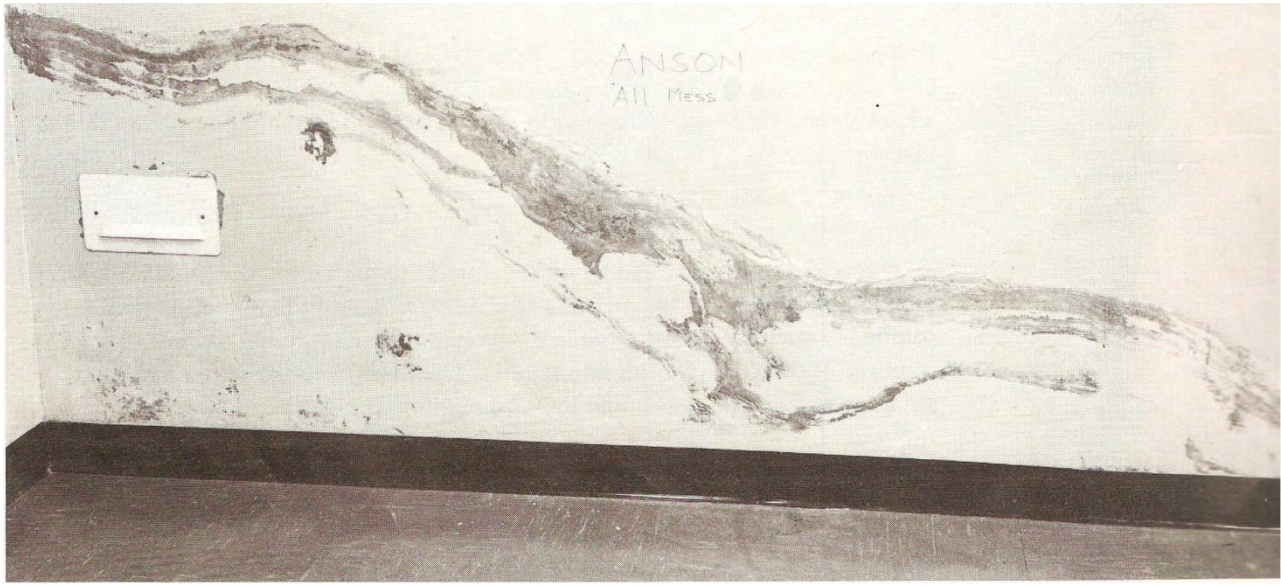


After

Concrete slabs prevent evaporation, so soil moisture is forced up the wall

Rising damp in brick and stone masonry. Note how the worst decay is at the base of the window opening. This is where most evaporation takes place and hence most decay due to salt attack.





Rising Dampness on wall