

INSIDE YOUR HOME – RISING DAMP

What are the causes of and cures for rising damp in a home? One of the most prevalent types of dampness is rising damp. Find out what causes it and the possible cures.

Rising damp (or “salt-damp” as it is often called) occurs on the bases of walls. It moves upwards vertically because the damp proof course that all houses are required to be fitted with is not doing its job and stopping the moisture from rising.

CAUSES OF RISING DAMP

The main causes of rising damp – either singular and often in combination – are:

1. A damaged damp-proof course (dpc) and/or the damp proof course no longer copes with changing conditions such as a rise in ground level.
2. Inadequate sub-floor ventilation – lack of ventilation in the sub-floor results in a build up of humidity and means only minimal evacuation of moist air occurs from the sub-floor; also minimal evaporation from the soil and base walls occurs.
3. Sub-floor obstructions – any debris in the sub-floor can obstruct the flow of ventilation and may contribute to dampness by bridging the damp-course; e.g. heating ducts wedged between the ground and floor structure.
4. Poor drainage and/or damaged guttering and pipes – Water may be directed underneath your house if you have poor site drainage, built up garden beds and grounds sloping towards the house. If storm water pipes, gutters, roofs or down pipes are damaged, this can cause excessive leaking which can also cause dampness problems – especially if it enters the sub-floor void.
5. Concrete slabs placed adjacent to pre-existing brick walls will bridge the dpc, enabling moisture to wick up the wall. As well, if placed adjacent to walls dividing concrete floors from original timber framed floors, moisture will bridge into the timber floor system – then causing rot and failure. This is a common “modern” construction defect.

WHAT ARE THE CURES FOR RISING DAMP?

1. **A damaged damp-proof course or the damp-proof course no longer copes.**
 - Repair the damaged dpc. A deteriorated dpc is nearly always one that has cracked from movements over time rather than physically broken down. Slate and mortar dpcs are the sorts most subject to damage from this cause, but tar and sand can also become brittle enough to crack. You’ll probably be able to see a local patch of efflorescence, which looks like a white, chalky powder on the surface or sometimes if a lot of crystals form, it can look quite white and furry. Fretting or timber rot in sub-floor framing are other visible effects of damage. The associated damage is usually local and close to the crack. In the case of isolated patches of rising damp due to this cause, local insertion of a new dpc followed by treatment of deteriorated plaster as further described will usually be appropriate.
 - Remove soil if the ground has been raised to ease pressure on a deficient dpc. Sometimes brick walls are higher off the ground than required by regulation. If the dpc is working properly, this is not a problem because water wicking up the walls is able to evaporate before it reaches the level of the dpc. However, if the

level of ground has been raised outside or ventilators under the floor are blocked, the moisture has nowhere to go except up through the deficient dpc.

- If a plastic membrane has been used as the damp-proof course and has been damaged, this can also put additional load on the dpc and result in rising damp, particularly if the ground underneath is boggy. A partial effort is to drain the ground – both sub-floor and externally. This is by no means singularly effective – merely a precursor to upgrading the dpc.

2. Inadequate sub-floor ventilation

- Remove obstructions from sub-floor ventilators if they have become partially or completely blocked. Lower the external ground level if it has risen over time – to levels lower than adjacent sub-floor ground.
- High paving/ground should be removed and sub-floor ventilators exposed – replace paving with suspended floor/paving systems enabling sub-floor ventilation there-under. A lesser option is to install ducts connected to sub-floor vents where blockages have been caused by laying a path or verandah higher than the original position and it is not possible to lower them.
- Replace traditional terracotta and cast-iron vent faces with modern metal vents. The holes in terracotta and cast-iron vent faces offer only one tenth of the ventilation area as their modern counterparts.
- Increase the number of vents. In full brick houses, it might be necessary to carefully form openings in the internal base walls beneath the floor to ensure the free flow of air throughout the whole sub-floor space.
- Create suitably located flues, such as a sheet metal pipe. The stack effect will draw air from the sub-floor area and discharge it to the outside above roof level.
- Use wind-driven cowls on the top of flues such as solar-powered electric fans to move more air. A disused chimney can also serve this purpose if the fireplace is blocked off and holes are cut through the hearth.

- Place a ventilator (incl. a damper) through the floor near the hearth where an open fireplace is still in use. This will enable the fireplace to draw air from the sub-floor area while at the same time reducing cold-air drafts.

3. Sub-floor obstructions and oncoming dpc

- If you currently have a concrete path located above dpc level, rebuild the path below the dpc and the adjacent subfloor ground level, then slope it away from the house. This will stop layers of mulch or topsoil building up above the dpc and help to stop termite infestations in the sub-floor.
- A lesser option is to install a spoon or enclosed drain in the path adjacent to the wall and connecting it to the stormwater. The first option is preferable as it improves sub-floor ventilation and seepage into the sub-floor void.
- If the dampness is being caused by a bridge of mortar droppings in the base of the cavity wall in a full masonry house, it will be almost impossible to access the cavity to remove the bridge unless bricks are removed. Replastering the specific damp patch will usually complete the fix.

4. Poor drainage and/or damaged guttering and pipes.

- Test for leaks – modern domestic water meters are very accurate so if you turn off all the taps and the meter still registers a flow, there must be a leak.
- If you've repaired leaking water pipes or drains and still have problems, contact a licensed plumber and ask them to investigate whether there are any cracked or damaged waste pipes (sewer or stormwater). Unfortunately, these types of repairs can be costly and require lots of effort.

If none of the methods above work, then it will be necessary to install a new damp-proof course.

There are two methods of doing this:

- Physically insert a new dpc
- Use chemicals to create a new dpc

A complication with the first method is finding a type of mortar that will support the weight of the wall. There are proprietary brands that insert plastic bags sequentially – then pumping mortar under pressure into the bags to provide bearing.

With the second method, the bricks or mortar are injected with a chemical that will make that layer of bricks and mortar highly resistant to moisture. This has the advantage of preventing future rising damp without the need for structural rework. The effectiveness of this method is highly reliant on the care taken and the expertise of the person doing the work.

Make sure you consult an experienced operator for advice on the best solution for you and your home.

Consequential work will invariably accompany reinstatement of a dpc – this requiring replacement of internal wall linings and trims that become salt affected.

If you would like to talk to an Archicentre Australia architect about a particular matter please call us on 1300 13 45 13 or go to www.archicentreaustralia.com.au