Chemical Damp-Proof Course Insertion - the attendant problems

PROPERTY CARE ASSOCIATION
A Division of the BWPDA

Introduction

A damp-proof course is usually inserted at a level of 150mm above ground level in the case of external walls and as close to floor level as is practical in internal walls. Information as to the techniques employed are set out in the BWPDA Code of Practice and the British Board of Agrement Certificates issued in respect of the individual systems.

The sole purpose of the damp-proof course is to prevent moisture rising from the ground into the walls above damp-proof course level by means of capillary action. In many cases the insertion of a damp-proof course will not by itself result in dry walls.

The purpose of this paper is to indicate to the specifier and user some of the attendant problems which, unless dealt with, may result in a failure to obtain the full benefit of the damp-proof coursing work.

Other sources of dampness

As previously stated a damp-proof course is intended solely to prevent rising damp and where other sources of moisture ingress remain unrectified walls may continue to be damp even though further rising damp has been successfully prevented.

In many cases the damp-proof coursing specialist company's report will indicate where sources of dampness, other than rising damp, were noted during the course of their inspection. However, the client or specifier must be aware of potential sources of moisture ingress and take measures to investigate and rectify such problems as part of a general damp-proofing programme.

The principal causes of dampness to the walls of buildings, other than rising damp are:

1. Rain water penetration caused by:
   - i) defective or inadequate rain water goods;
   - ii) porous brick or stonework;
   - iii) cracked renderings
   - iv) defective pointing/sealing;
   - v) uncapped projections (trap driving rain, particularly when situated on the weather side of the building) e.g. chimneys, abutting walls;
   - vi) cracked cills;
   - vii) cills and other projections that lack an effective throating or drip;
   - viii) defective external and internal plumbing.

2. Atmospheric Moisture:
   - i) Condensation (see BWPDA DP 3)
   - ii) Moisture attracting properties of materials contaminated with hygroscopic salts (see BWPDA DP 2)

3. Ground Water:
   - i) Lateral penetration of ground water where walls are earth retaining;
   - ii) Ground water dampness to the section of the wall below the level at which the damp-proof course has been inserted;
   - iii) Dampness to solid floors which lack an effective damp-proof membrane in their construction. Note: many old solid floors lack a damp-proof membrane.

Conditions which may impair the efficiency of the damp-proof course

1. Bridging, i.e. the partial or total covering of the damp-proof course with a porous material allowing moisture from the ground to by-pass the damp-proof course.

Commonly encountered examples of bridging are:

i) by flower beds and paths. The damp-proof course is inserted at approximately 150mm above external ground level. Flower beds and paths must be introduced and maintained at the existing ground level.

ii) by solid floors introduced subsequent to damp coursing.

Note: where it is intended to raise path or flower bed levels or where a new solid floor is to be introduced problems can be avoided by informing the damp coursing contractor of the intended finished level before the damp-proof course in installed.

iii) by plinths and external renderings. Ideally plinths that extend to above the level of the damp-proof course should be removed. The bottom 150-300 mm inches of any external stucco or render should be removed and subsequently replaced with a waterproof barrier that will not allow capilliarity from the adjacent ground. (see fig. 1 and 1a).

iv) by porous internal plaster or porous plaster finishes. Unless specified to the contrary by the damp coursing contractor, in which event a non-porous plastering system is to be used, wall plaster should stop above the line of the damp-proof course. Porous plaster systems and setting coats must never be allowed to come into contact with damp solid floors. (see fig. 2)

2. Failure to link the damp-proof membrane in solid floors with the damp-proof course in the wall. (see fig.3)

3. Partly below ground situations.

Where the walls are partially earth retaining (see fig. 4) dampness is likely to be due to a combination of the lateral penetration of ground water and rising damp. The damp-proof course will only prevent dampness to that section of the wall above ground level and a form of water barrier will be necessary to deal with the dampness in the lower part of the wall and floor.

In such situations special water proofing compositions should be used and it is essential that these should be carried up to above the level of the damp-proof course.

Conclusion

In order to ensure that the full benefit of damp-proof coursing is derived, specifiers and clients are advised to:

i) Investigate all the possible causes of moisture giving rise to the damp conditions and carry out all necessary repairs to prevent moisture ingress. Remember a damp-proof course will not stop dampness caused by a defective window cill!

ii) Follow the recommendations of the damp proof coursing contractor with regard to walls affected by hygroscopic salts.

iii) Ensure that other repairs and building work do not result in the efficacy of the damp-proof course being impaired; i.e. avoid bridging by solid floors and plaster.

iv) Maintain external levels at 150mm (6") below the level of the damp-proof course.

v) Remember that wet building processes introduce further moisture into the building - allow time for this moisture and residual moisture resulting from previous rising damp penetration to dry out - this may take longer that you expect. Permanent decoration should not be carried out until it is certain that the structure has dried out.

Note: the use of forced drying should not be recommended.

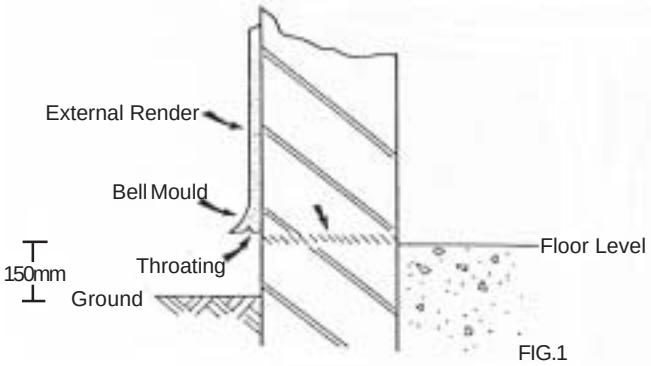
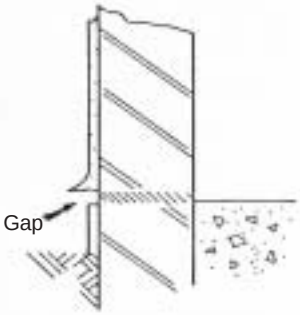


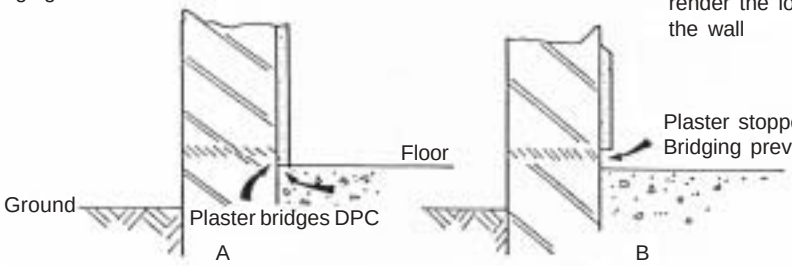
FIG.1

Bell Mould to prevent external render bridging the DPC



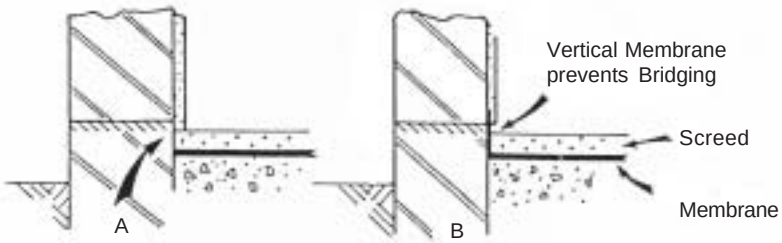
Alternative to Fig.1 for use where it is necessary to render the lower section of the wall

FIG 1a



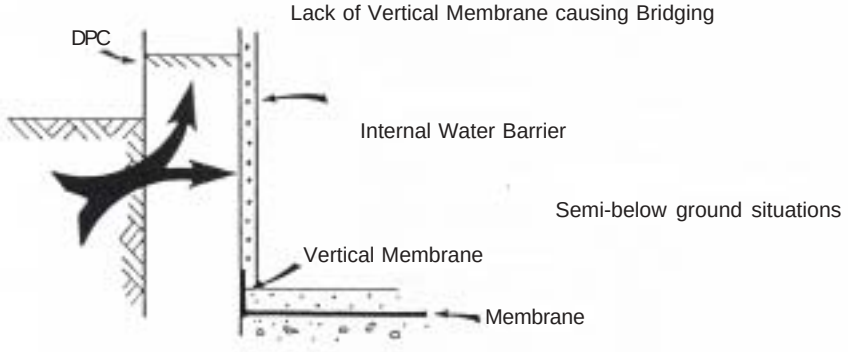
PLASTER BRIDGING

FIG 2



Lack of Vertical Membrane causing Bridging

FIG. 3



Semi-below ground situations

FIG. 4

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