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Technical Information: Wall Tanking Number 142

When water continuously moves through the masonry walls of a building, damage will eventually occur. This may take the form of damp patches, spalling plaster, mould growth or the development of fungal decay in adjacent timbers. In most cases, the first step in correcting the problem is to deal with the source of the water.

This may be, for example, a leaking gutter or a burst pipe, both of which are fairly easy to correct. However, in the case of lateral water penetration through earth retaining walls, it is often not practicable to remove the water source because it would require:

(i) the reduction of external ground levels so that walls are no longer earth retaining or

(ii) the excavation of the external surroundings, the formation of an external tanking system and the reinstatement of the external ground.

In such cases, consideration has to be given instead to the creation of an internal tanking system. The inherent danger associated with this type of approach, namely the fact that ground water continues to enter into the masonry walls, is often ignored. As a result, failure of the tanking system occurs. It is, therefore, essential that a detailed survey is undertaken if a successful internal tanking system is to be created.

The Survey

Experience has shown that the success or failure of an internal tanking system depends primarily on the quality of the survey, which must take into account various factors including:

- The nature of the internal wall surface, including the presence of existing surface finishes
- The nature and condition of the earth-retaining masonry walls
- The nature and condition of the internal floors
- The moisture content of the walls
- Perforations through the walls
- The location and function of any timbers in contact with the walls
- Openings in the walls, such as windows or doors
- Steps or stairs in contact with the walls
- The possibility of a high external water pressure on the walls

If it is believed at this stage that the walls are suitable for the application of an internal tanking system, attention has to be turned to what will happen to the water, which will continue to enter into the walls when they are tanked. Where will the water go?

These considerations will usually result in the need to create horizontal and vertical damp-proof courses in adjacent walls, in order to prevent the movement of water into other areas. The nature of the existing floor at the base of the earth retaining walls will also need to be taken into account for the same reason.

There is no point in forming an effective internal tanking system on earth-retaining walls if the problem of lateral water penetration is just moved elsewhere within the building.

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The Rentokil Solution

The internal tanking system that has been developed for Rentokil Property Care uses a cement/sand render with a waterproofing additive, applied to a thickness of around 9.5mm, as the first coat. If the wall has a moisture content in excess of 18% w/w, this is followed by a second coat of the same material.

The final two coats of the system are cement-rich materials, containing a bonding additive, which are each applied to a thickness of about 3mm. If necessary, a plaster finish can be applied to the tanking system.

The quality of the survey and the nature of the tanking system will be wasted if the work is not undertaken to the required standard. For example:

- Any existing coatings must be removed to expose the surface of the masonry wall
- Defective areas, perforations through, or extensive cracks in the masonry must be dealt with
- Attention must be paid to the wall/floor junction
- Fixing points must be created, where required
- The necessary horizontal and vertical damp-proof courses must be formed
- The internal tanking system must be applied to the walls using the correct specification

Provided these requirements are met, a satisfactory tanking system will be formed, which will satisfy its design function, namely to prevent the water contained within the masonry wall from having an adverse effect within the building. A ten-year guarantee is issued.

Other related Technical Releases are No 127 Rising Damp and No 139 Replastering Wet Walls.

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