

Wall-floor junction to seal or not to seal?

Background to this issue

This advice note has arisen because out of the many thousands of BS8102:1990, Type C Drained Protection waterproofing systems installed, several cases of interstitial condensation occurred on the inner face of the wall membrane to dampen the dry linings and associated joinery, in cases leaking out onto the dry side of the floor in the liquid form.

Legal Implications

In designing a waterproofing system, one must consider the consequences of that design, and while this primarily relates to the efficacy of the waterproofing, one must take into account the intended usage in respect of humidity levels and the need for balanced heating & ventilation to prevent interstitial condensation occurring.

Sealed Wall-Floor Junction

Before the availability of associated sub-floor drainage channels, it was a necessary requirement and therefore standard practice to link the cavity drainage membranes on the slab and walls using proprietary adhesive butyl tape.

Unsealed Wall-Floor Junction

With the introduction of sub-floor drainage channels into the UK, there is now an option to instead seal the tape applied over the edge of the floor membrane to the face of the upright flange of the channel, this without extending to link the floor tape to the wall membrane. If so, the wall membrane extends down the back of the channel flange without tapes applied, effectively leaving an open joint between the floor and wall membranes.

Which option to Use:

Sealed

In cases where the humidity in the internal environment is controlled and balanced by heating and ventilation, condensation very rarely occurs within the occupied area, and interstitial condensation even more rarely occurs within the system on the inner face of the cavity drainage membrane where dry lined over, particularly if the plasterboard includes a vapour check.

Unsealed

In uncontrolled environments where high vapour levels persist because of imbalance in heating and ventilation with the 'occupied' area, be it occupied by persons or used for storage, condensation could occur interstitially upon the inner face of the cavity drainage membrane on the walls behind the dry lining, particularly at the external walls. While this is a very rare occurrence and may be mitigated if a vapour check is included in the plasterboard, where interstitial condensation does occur, if the water can drain down the inner face of the membrane without obstruction and where the membrane is stood off from the back of the channel flange to leave a gap between, it would drain down into the channels to be safely controlled.

Environmental Issues

As there is no long-term experience of systems installed leaving open joints in association with cavity drainage membrane and dry lining, consideration must be given to potential resulting problems.

Open joints cannot be formed where Randon or contaminants are an issue, or in hospitals or food preparation areas because of potential escape of vermin and odours.

Even where left open, although vapour pressure internally will almost be higher, open joints could lead to interstitial condensation remaining undetected, the consequences of which could be decay of timber battens supporting the dry lining, associated wood decaying fungus and more worryingly, mould growth.

Suggested wording in a design might include something along the following lines, adjusted to suit the type of property and intended usage.

As at any level in a property, in a basement environment there is a need to control humidity by installing and maintaining a balanced environment to suit the intended usage, otherwise water vapour produced internally by that usage may condense upon the internal finished surfaces, and in extreme cases interstitially behind the dry lining on the inner face of the cavity drainage membrane.

While 'interstitial' condensation has proven to occur in basements very rarely in the past, it is the duty of a designer of waterproofing systems and basements, to clearly warn of and emphasize this requirement; otherwise one may be held liable for such problems in the future where a client does not maintain the required balance between heating and ventilation.

If there is any doubt in whether balanced heating and ventilation will be maintained, then it is safest to include a vapour check in the plasterboard, and leave the wall and joint between the membranes unsealed, with potential interstitial condensation then controlled by draining down into the drainage channel.

However, if so the system does not then discourage escape of water vapour at the wall and floor junction, nor escape of odours and vermin, and as stated, these particularly being an issue to avoid in hospitals and food preparation areas, but factors not noted as occurring to date.

From a technical perspective, in addition to emphasizing the need for balanced heating and ventilation, one can also refer to automatic humidity control and CIRIA 139/140.

As with any advice given to a client or third party client advisor, it is simply a duty to explain the various pro and con factors upon which that advice is given, allowing them to agree which option to follow, in doing so being fair and reasonable while limiting potential long term liabilities.

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