



The Dreaded Water Sandwich

This condition is caused by a concrete slab which has been laid over a permanent impervious layer. This could have happened because;

1. the concrete was laid over a corrugated metal deck to form a structural entity. This case can be avoided at design stage by specifying a perforated metal deck; or
2. an impervious layer like tarpaper or waterproof felt was placed over the permanent form before the concrete was laid; or
3. a structural slab which was waterproofed with a layer of material such as Bituthene® or EPDM Rubber and then a further layer of concrete was laid over the waterproofer.

In each case, the underside of the slab allows no escape route for water in liquid or vapor form.

In cases where repair to water leaks in an existing building are necessary and the concrete slab appears to have had no sign of roofing or waterproofing on the surface or a cosmetic type of paint coating may be visible this would be a strong indication that some waterproofing exists below the surface. In particular, if the building is one of reasonable integrity it would be highly unlikely that the architect or designer would not have incorporated a waterproofing system of some type at the time of construction.

The reason for the current leaks is that the existing subsurface waterproofing has failed at some location(s) but it is highly likely that it is well intact in others. This will mean that water is being captured on top of that membrane in a "pool" within the upper concrete layer. This can represent large quantities of water in some cases. If a layer of Sealoflex or any other membrane is placed or applied on top of such a slab that water is then trapped between the two waterproof layers. While Sealoflex does offer good vapor permeability it will not be able to dissipate the quantity of water found in such conditions. The consequence will be a severe vapor pressure build up and manifest itself as bubbling or blistering of the Sealoflex or other waterproofing surface. All attempts to repair this by cutting bubbles and patching will be futile, as they will simply recur. *The one positive condition that exists here is that no more water is entering the slab due to precipitation.*

In the case of new construction, if the impervious layer exists below the slab, the concrete will take in water from precipitation during the curing period. This condition will naturally be a problem as soon as the waterproofing layer is applied.

The process of drying out slabs such as these will be very difficult and generally have inconclusive results. Therefore, the recommended remedy is to glue a layer of cement board such as Durock® or Permabase® using a foamed polyurethane glue applied in a serpentine bead over the concrete surface. A minute air gap will now exist at the interface of the concrete surface and the underside of cement board. The vapor pressure caused by the trapped water can now relieve itself into this thin air layer and find its way out of the structure without creating pressure bubbles or blisters under the waterproofing layer.

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