WATER CONFINMENT WITHIN THE SHOWER AREA

by **Barry Schafer**

The high risk areas, most in need of waterproofing, according to the Australian Standard AS 3740 – 2004 'Waterproofing of wet areas within residential buildings' are shower areas. The standard is written around the philosophy of confining water within the shower area. The purpose of this design philosophy is that the more you let water spread the greater the potential for moisture induced problems, that will damage the building structure and finishes and/or create unhealthy conditions due to fungal and bacterial growth. The Building Code of Australia (BCA) has the following performance clause to prevent the development of these problems:

To protect the structure of the building and to maintain amenities for the occupants, water must be prevented from penetrating:

a) behind fittings and linings; or

b) into concealed spaces, in sanitary facilities, bathrooms, laundries and the like.

While AS 3740 has design specifications for a shower design without a vertical step at its periphery as shown in **Figure 1**, the preferred options are to have a vertical step at the edge of the shower created by installation of one of the following:

– Hob (See **Figure 2**)

– Step Down (See **Figure 3**)

– Preformed base (See **Figure 4**)

Showers that have a vertical step can allow water to build up on the shower floor where it pools to develop a head of water that can drain into the waste outlet without escaping from the shower area. In these circumstances the fall on the shower floor can be flat, 1:100 is quite acceptable. For those with no step to retain water within the shower area, fast drainage is imperative as no pooling can be allowed and the floor slope needs to be high enough to drain the water to the waste outlet quickly. The slope needs to be at least 1:80 and preferably 1:60. The waste outlet also needs to have sufficient perimeter to drain the capacity of the water delivered from the shower rose. This critical drainage into the waste outlet is often over looked in the design of flat shower floors. In some instances a floor waste with a small diameter is incorrectly specified for aesthetic reasons.

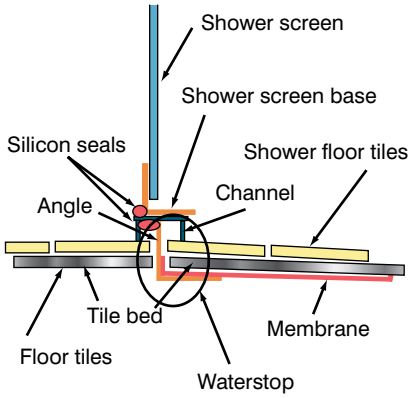

Figure 1 – Perimeter detail for shower with no vertical rise at the periphery

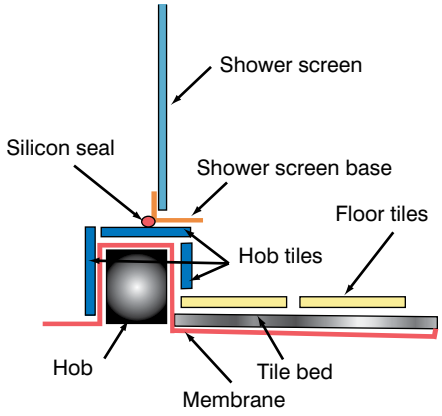

Figure 2 – Perimeter detail for a hob termination

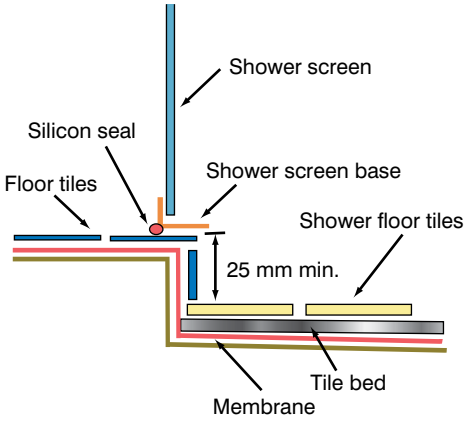

Figure 3 – Perimeter detail for a step down termination

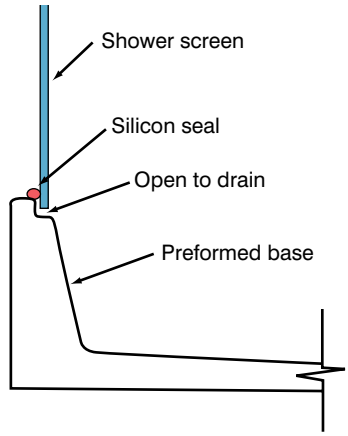

Figure 4 – Perimeter detail for a preformed shower base

In the design of the drainage, allowance has to be made for water that has had its surface tension reduced by soap or shampoo. **Figure 5** shows how soap alters the drainage into a waste outlet. The photograph (a) is the water flow without soap while (b) depicts the increase in water level once soap was added. The water level at the waste increased about 10mm in this case. This occurred because once the surface tension of the water is reduced the pull of the sheet of water into the waste is greatly reduced.

This reduction in drainage needs to be considered in both the perimeter of the drainage waste and the slope built onto the shower floor so water will not pool on the floor of these showers with no vertical rise.

Figures 1 to 4 illustrate the critical aspect in the sealing of the shower screen at the base termination. In all cases the sealant needs to be applied to the outside

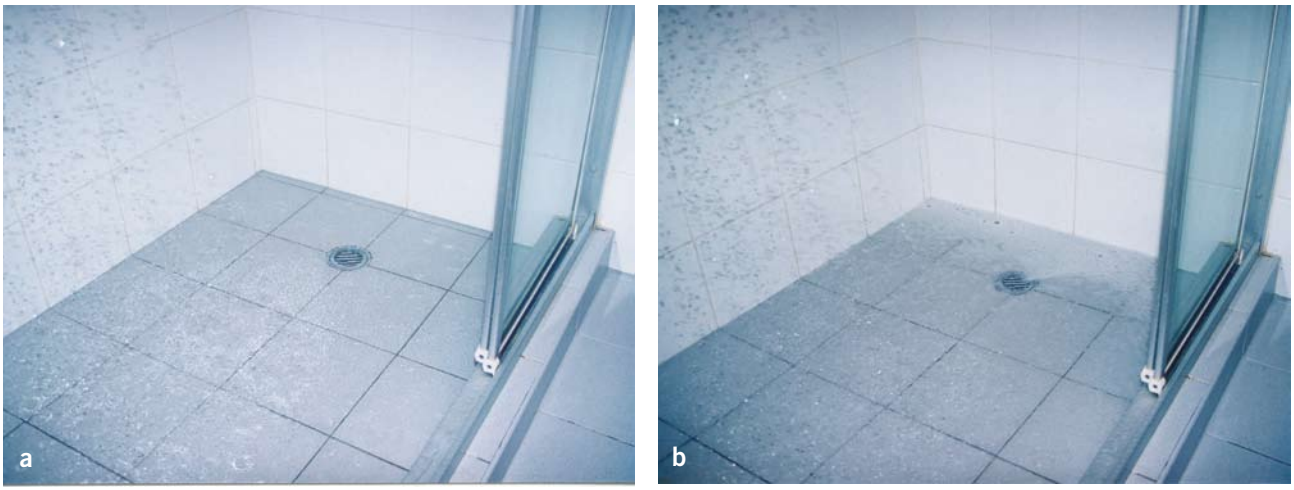

Figure 5 – Soap effect on drainage

face of the screen, with an open drainage path under the screen to let it drain back into the shower area.

This aspect of shower screen installation was discussed in detail in Issue 39 published in June-August 2003. **Figure 6** shows how shower screens are commonly put together in a manner that results in gaps allowing water to enter into shower screen frames. The channels that the panels are riveted into, as shown in **Figure 6 (b)**. are where water is pulled into the frame channel by capillary action.

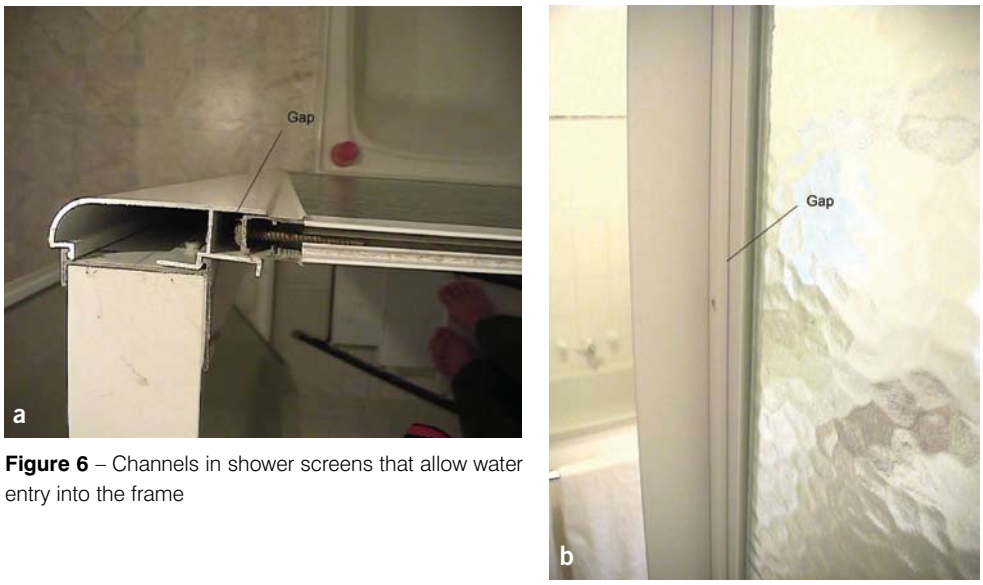

Figure 6 – Channels in shower screens that allow water entry into the frame

Some screens that I have seen that were not allowed to drain at the base resulted in this channel filling to a depth of about 900mm. If water is held in these vertical channels it can feed a leak from the screen for some hours after showering. If the sealing is at the inside face of the screen, leaking from this channel will penetrate into the general bathroom area. AS 3740 – 2004 treats the general bathroom area as a lower risk zone so it is important that all water used within the shower area is contained within this high-risk area, that is given the highest level of waterproofing. It is surprising how often screens are sealed on the inside rather than outside.

On another topic, currently there is very little control of the application of waterproofing with little if any formal training or certification of waterproofers. At present most State Government building control departments are developing ways of controling the waterproofing industry. Earlier this year the Australian Institute of Waterproofing was formed with its main aim being the establishment of training courses and provision of technical information on waterproofing. Their website is **www.aiow.com.au**. The technical information section of the website, at the time of writing this article, is under development and it is anticipated that some articles will be available by the end of the year with training courses starting early next year.