How to keep water within the shower recess

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If water is to be retained within a shower recess there are several aspects that need to be considered: shower screen design and waste outlet, type of drainage and choice of recess floor, and whether to have a hob design or no vertical step to retain water.

Should there be no vertical step or hob, then good floor drainage becomes more critical if flooding of the floor outside the shower recess is to be avoided. The current Australian Standard – AS 3740 'Waterproofing of domestic wet areas' (2010) – requires a water-stop that extends above the surface of the tiles to prevent water leakage as shown in Figure 1.

If there is a trip hazard in having the water-stop protruding above the surface (as with frameless glass shower screens) then it was installed 1500mm from the shower-rose fixture on the wall. Frameless shower screens were classified as being an unenclosed shower recess in clause 5.11.8 of the 2004 edition of the Standard. The main leakage problem with frameless glass shower screens occurs when water lands on the screen door, flows down to the bottom, tracks across the bottom edge by
surface tension and drops off the outside edge. The drops from the outside edge are then pushed by the air flow out of the shower area under the door as shown in Figure 2.

Although the flow shown in Figure 2 is onto the hob of a shower recess, the same flow would occur onto the floor had the door been over a non-step-down shower recess.

There is clearly a difference to the water leaking out of a totally unenclosed shower as shown in Figure 3 to that of a frameless screened shower as shown in Figure 4.

To cover the difference in performance of the two types of showers shown in Figures 3 and 4 the 2010 edition of AS 3740 made two separate types of unenclosed showers: Type 1 where there is a device that restricts splashing during use, typically one fitted with a frameless shower screen, and Type 2 which does not have a device to restrict splashing as shown in Figure 3.

It is possible to fit a trim to the bottom of a frameless glass door that directs water flow (at the base of the door) back into the shower recess. However, these need regular cleaning, and often get removed to ease the cleaning process. There are now designs becoming available that have the door set back behind the fixed panes of glass with a typical example shown in Figure 5.

Having the shower floor set-down, or containing water by a hob, are the best ways of keeping water within a shower recess. Without such a vertical containment of the water within the shower recess it is vital that the floor drains easily, as flooding of the floor will result in water flow outside the shower area. In instances where water is just flowing across the floor, the flow rate into the drain is related to the periphery length available for the water to flow over, and not the surface area of the drain. The flow is also related to the surface tension of the water flow.

Figure 5 – Setback frameless shower screen door. (Figure was provided courtesy of Slyder Frameless Shower Screen)
When soap is being used the flow into the waste is reduced as the water – lacking its full surface tension – is not pulled as effectively down into the waste as shown in Figures 6 and 7. These photographs show the same shower, with just water flow in the former, and soap added in the latter. The water flow without soap did not even reach the back wall of the shower, but with soap a water depth of about 5mm formed against the back wall.

As the length available for water to flow into the drain is important, linear drains (as shown in Figure 8) have an advantage over round drains, with a much longer wire length for water to flow over into the drainage system. Although linear drains usually end up in a flow into a circular outlet, the water in the trough – flowing to the outlet – can build up to the depth of the drain. This allows a higher depth of flow at the circular outlet than could be accommodated around a drain on a shower floor. These linear drains also have the advantage that the shower floor can have a one directional fall which makes it easier for large format tiles to be laid without complex cutting to get two directional falls.

If water is to be retained within a shower recess then the designer needs to comprehend all aspects of the shower – including the type of shower screen to be used – so the necessary detailing can be incorporated into the waterproofing.

Figure 6 – No water without soap at back wall
Figure 7 – Soapy water reaches back wall
Figure 8 – Linear drain installed on a shower recess (image courtesy of Stormtech Pty Ltd)
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