

# Water stop position to retain water within shower area

by Barry Schafer

Since 1994 AS3740 has required the use of a vertical barrier around the periphery of a designated shower area. Even though this requirement exists within the code little attention is paid to the water stop installation for showers built without a step down or hob. With step down or hobered showers there is vertical separation around the periphery of the shower which prevents water seeping outside the shower area.

Even though the use of water stops has been in the code since 1994 I still receive a considerable number of emails about water stop requirements, so in this article I will concentrate on the special requirements for so called 'flat floor showers', that is, showers which do not have a vertical separation around their periphery. The current code, published in 2004, has some additional requirements for water stops designed to suit this type of shower.

Where there is a screen fitted to control the spread of water outside the designated shower area the water stop must protrude

at least 5 mm above the finished floor level under the screen as shown in **Figure 1**.

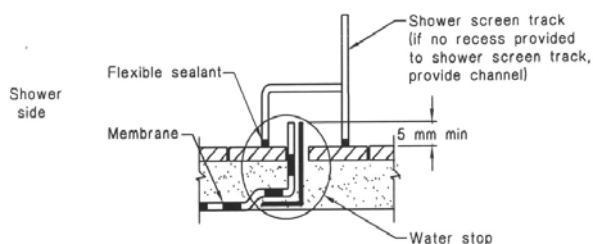


Figure 1 - Water stop requirements under a shower screen.

To accommodate the water stop there must be a hollow channel section under the screen, to allow the water stop angle to protrude at least 5mm above the finished tile level. With many current screens on the market, and with frameless glass fixed panels, this requires the fitting of a 'U' section under the screen. The 'U' section is usually metal, although stone can be used to blend with an existing stone finish. Without the 5 mm protrusion water can seep out from the shower area by weeping over the top of the water stop angle. To enable the correct positioning of the water stop angle the waterproofer needs to know the horizontal location of the shower screen as well as the finished floor level to locate the top edge of the angle correctly.

In small ensuite bathrooms where there is only sufficient space for a water tight shower screen fitted on one side with either a completely open entry as shown in **Figure 2**, or a frameless glass door. Neither of these installations can be relied on to contain water across the opening. In the shower shown in **Figure 2** someone thought that the small rounded section fitted across the entry might contain water within the shower area - a very optimistic view. In fact all it would achieve is the prevention of water which fell outside the trim draining back into the shower area. The water stop needs to be installed outside the splash zone.

AS3740 describes the extremity of the splash zone as a 1500mm arc from the wall outlet to the shower rose. This distance is based on testing undertaken some years ago. In these tests two different shower roses were used one with a single spray or jet pattern, the other with two different spray patterns and two different jet patterns. Both were tested in different situations at the side and back of a shower. A non-fixed shower rose was also tested. The test comprised of two different people showering in 24 different situations, not necessarily together. The results of these tests are shown in **Figure 3**. The splash water was measured by weighing 100 mm wide strips of dry towel laid on the floor before and after each shower. Measurements were only taken from the front edge of the fixed side panel to the shower. The floor area between the fixed side panel and the wall was considered to clearly be within the designated shower area with water falling in this area draining freely back to the shower waste.

It was interesting to note that the non-fixed rose produced a lower splash than a fixed jet on the side. Before these tests were conducted I, and others involved in developing the Standard, were

Figure 2 - typical open shower installation



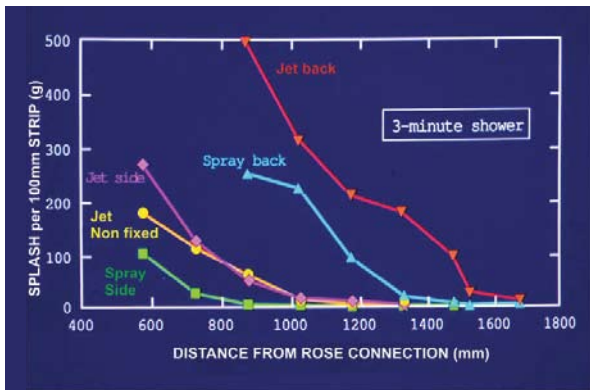


Figure 3 – Shower splash water spread

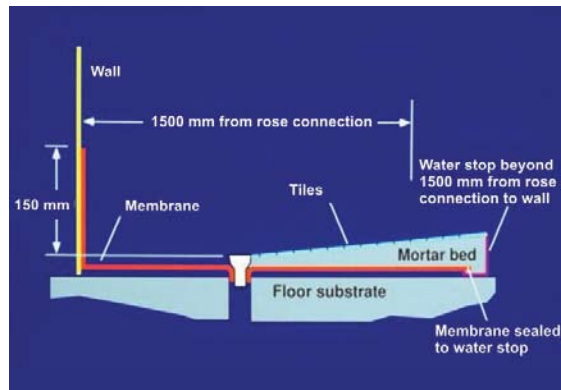


Figure 4 – Water stop location for an unenclosed shower

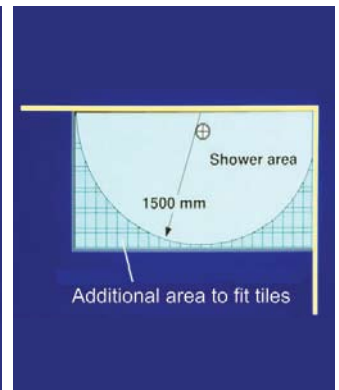


Figure 5 – Water stop location in plan view

convinced that non-fixed shower roses produced a high spread of splash water.

The testing showed that when using a non-fixed rose the rose was directed towards the body for virtually all of the showering time with only the rebound water ending up in the measured splash zone. Clearly back mounted roses produced a greater spread than a side mounted rose. The reason for this is that when you rotate in the shower to wash the other side you tend to walk around rather than rotate, and therefore for a short period the water stream from the back mounted rose is unobstructed in its path to the floor. For the side mounted rose it is directed onto the side screen with only rebound water ending up on the floor. From **Figure 3** it is clear that to minimize water spread for an unenclosed shower the rose should be located on the side rather than the back of the shower. The testing shows that 1500 mm is the distance that splash water is expected to travel from an unenclosed shower, which is the reason for the 1500 mm splash zone designed in AS 3740.

For the unenclosed shower there is the requirement in AS 3740 to fit a water stop outside the shower area as shown in **Figure 4**.

**Figure 4** is a cross-section view of the installation of the water stop at a distance of not less than 1500 mm from the outlet of the shower rose connection to the wall. In plan view as the water stop must come to the top of the finished tile level it must fit in within the layout of the tiling with its vertical leg lining up with a grout joint as shown in **Figure 5**. However, in small ensuites the distance needed to line up grout lines can lead to odd looking water stop locations as shown in **Figure 6**.

Here the solid blue line shows the location of a continuous water stop that complies with the requirements of AS 3740. However, from an aesthetic perspective its return around the fixed glass panel tends to look a bit odd. The alternative is to install 2 water stops at locations as shown by the dashed blue lines, one across the doorway into the ensuite and the other across from the wall to the glass screen. In both cases the whole floor area contained within the water stops and walls needs to be fully waterproofed and drained back to the waste within the shower area. The second option would, in my opinion, result in a more visually satisfying finish which will not require a huge increase in the area to be waterproofed. The savings made by installing simpler water stops would more than compensate for the cost of any additional waterproofing.

Part of the current interest in AS 3740 water stop requirements is due to the increase in the use of natural stone on the floors of bathrooms. In selection of the stone the main criteria that needs to be considered in wet areas is that some parts of the floor will be subjected to continual wetting and drying. Some stones, especially those formed by sedimentary deposits, tend to flake when subjected to wet and dry cycling. There is a mistaken belief in the industry that using water stops will stop the wetting and drying process which occurs in bathrooms. Water stops do not stop

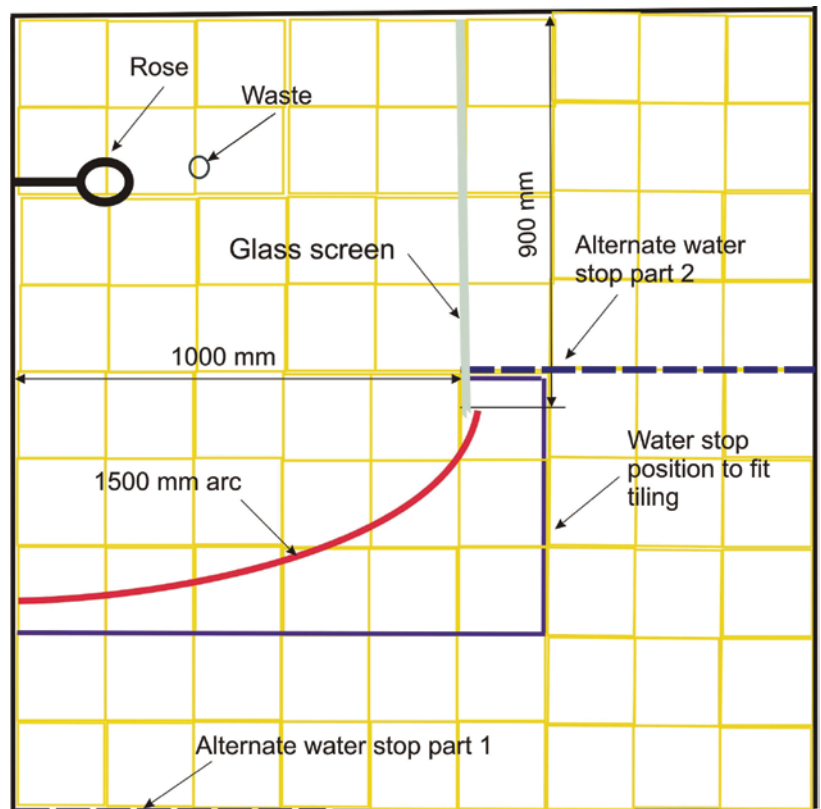


Figure 6 – Plan view of small ensuite

this they merely shift the spot where it occurs to behind the water stop. So even if a water stop is installed, and a stone is used that degrades under wetting and drying cycling, degradation of the stone will only occur, behind the water stop. When selecting a stone for use in wet areas its ability to remain stable is a prime selection criteria.

Water stops play an important part of the overall waterproofing system especially in flat floor showers. Their positioning must be functional and aesthetically pleasing. **TT**