Under pressure for good, comfortable showers

Water managers are under pressure to cut consumption – but consumers want bigger and better showers, reports Simon Napper.

Research carried out by the Building Research Establishment (BRE) shows that shower use in Britain is climbing rapidly – 'exponentially' is one term that has been used unofficially. In theory, this should be good news for water managers seeking to reduce water consumption. But in practice things are never that simple.

A shower should require less water than a bath. However, with the trend to more showers has come the move to bigger showers – power showers and fully pumped systems. Today's shower systems tend to deliver a much higher flow rate; 20 litres per minute is not uncommon and the multiple head, full body showers that are now becoming available will use even more. With the cost of water today, that can result in rapidly rising bills.

This expectation is not just impacting on household use. Leisure centres, schools, hotels must respond to customer expectations At the same time managers are under pressure to cut bills.

Manufacturers are responding, but they seem to be caught between the domestic consumers' requirement for 'bigger and better' models and the non-domestic users' wishes for better efficiency.

Nor is it just as simple as reducing water flow volumes. As one industry expert put it, if reducing flow rate were all that was important, a solid block of brass would be the most efficient shower – with a zero rate of consumption!

High performance will also mean satisfying user expectations. Interestingly, there is no agreement on how to measure 'a good shower' or the 'comfort factor'. Now, however, BRE is starting to develop this concept, focussing on three items:

- temperature stability;
- spray pattern (how well it wets the surface);
- skin pressure (how good it 'feels').

Performance levels will, therefore, have to be a balance of 'comfort' and efficiency (both of water and energy, since reduced hot water use will mean less heating required in the first place).

The simplest and most traditional method of reducing shower consumption has been to retrofit a flow restrictor. Manufacturers are generally averse to this procedure. The showers are designed to work under certain design parameters, including flow rates. To interfere with the supply volume risks the shower's performance, and in certain cases, increases the risk of temperature variability – including, in extreme cases, the possibility of scalding. Before fitting restrictors, users should check that they will be effective and safe.

Some manufacturers have produced models with reduced flow rates, as well as high levels of engineering and comfort (even if a formal definition of this is not yet available). Scandinavian producers have been aware of the need to reduce flow rates for years and many of their models run at 12-15 litres/minute, even on fully pressurised systems which would tend to result in higher flow rates than gravity fed equivalents.

There are two other methods increasingly seen on the UK market: atomisers and aerators. Atomisers mix the water with air and produce a jet of very small droplets. These will often give quite concentrated 'beams' of water. As the droplets are very small, they can produce a misting effect and high humidity levels. However, the overall flow rate is considerably reduced.

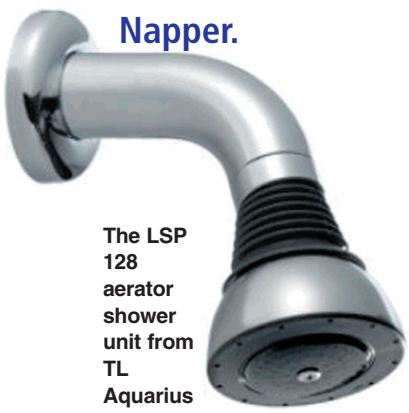
Aerators also use air to cut the flow rate but in a quite different way. The mixing process is engineered so that the water droplets delivered by the shower head are hollow – i.e. there is a bubble of air at the centre of the droplets.

The point is that it is only the water that makes contact with the skin – the droplet surface – actually has any cleansing action. So by maximising the amount of water on the surface, and taking out the unused 'core' of the droplets, the cleansing effect (and the 'feel') of the shower is undiminished, even though the volume of water is markedly reduced – typically to about eight litres/minute. Aerator technology for both showers and taps has been well-established in Scandinavia for some years.

The BRE has identified showers as an area of legionella risk. This disease can occur in certain at-risk sections of the population when very small droplets of water enter the lungs. However, the main risks are in water storage systems and can be minimised in one of two ways.

- water can be stored at a sufficiently high temperature to kill off the spores and so prevent them coming into contact with humans. The temperature normally quoted as a safe minimum is 55ºC. The water would then be cooled through mixing it with cold water prior to delivery.
- the alternative is to store water at a lower temperature but to treat it with a biocidal agent to kill any legionella bacteria that might be present.

There are several methods on the market to reduce water consumption. The key is to do so while still meeting user requirements for a 'good shower' – however they define it.



The LSP 128 aerator shower unit from TL Aquarius uses eight litres of water a minute

FURTHER INFORMATION

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