

ALL IS WELL WITH WELS

The Water Efficiency Labelling and Standards (WELS) scheme, which became mandatory in 2007, has gone on to set water efficiency benchmarks that are the envy of the world. Plumbing Test Consultant Terry Nguyen from PROVE Standards & Engineering comments.

The Water Efficiency Labelling and Standards (WELS) scheme began in Australia during the height of the drought in the mid 2000s. Its inception was only a smaller part of a larger government initiative to try and conserve Australia's reducing water storage. Reducing the water consumption from fixtures was seen as an easy way to target large savings. The Australian initiative to curb water usage from fixtures started small, but perhaps has gone a lot further than what we had first anticipated.

The WELS scheme is Australia's Water Efficiency Labelling and Standards scheme, and it was introduced to limit the amount of water consumed in buildings through fixtures and appliances that can perform the same duties with less water. It has been a mandatory part of Australia's building construction industry for more than 15 years now, which exceeds the duration of a lot of other similar schemes worldwide. In fact, a lot of the world witnessed the emergence of this revolutionary scheme and swiftly looked to introduce something similar, understanding its benefits.

The WELS scheme, though, had mixed responses when it first was introduced here in Australia. Many licensed practitioners and consumers alike resisted the initiative with a large amount of displeasure. Homeowners used to ample flow through high-flowing showers were suddenly met with products that were roughly half to a third of their traditional flow rates. Or toilets that easily removed waste now had to use far less water. Plumbers (probably unfairly) attracted a lot of the

blame for the installation of the new 'updated' products. The opposition to the introduction of the WELS scheme saw a large percentage of licensed plumbers removing flow controllers or adjusting products in anticipation of being called back in their own time to 'fix' the shower, tap, or toilet.

EARLY PUSH-BACK

The real reason for the initial push-back from industry though, in hindsight, could be largely to do with the products that were available back when WELS began. Most of these products became outdated overnight, having to achieve an intended outcome using water volumes that they were never designed for. Poor product performance using antiquated designs against new standards was likely the major contributor to the widespread dissatisfaction.

And whilst this may have been understandably true, in the background engineers had already begun designing new products to align with the new efficiency targets.

In engineering terms, the 'efficiency' of a product is often incorrectly associated with its overall consumption, which is not necessarily true. Something delivering water at 4L/min instead of 10L/min does not necessarily make it more efficient. Efficiency

refers to how well something (in this case water) achieves or completes a task. Any consumption that has been used to achieve a non-result, or which fails to achieve a desired target, can be considered a waste. So, a toilet using 4.5 litres to *almost* clear a bowl is not more efficient than a toilet that can use 6 litres to successfully clear all contents.

For this reason products these days are engineered differently to their older counterparts, based on a knowledge of the available water consumption. The key is understanding the end goal of what must be achieved. New product designs are only now achieving efficiency in the way that the WELS scheme had originally intended.

ENGINEERS MEET CHALLENGES

Australian Standards test methods have performance parameters defining comfort and effectiveness, whilst observing maximum water allowance. Engineers have risen to the challenge and are creating designs understanding what water consumption is permitted, as opposed to previous years where older designs were simply forced to comply with new legislation. If you knew you only were allowed 7L/min, would you design a showerhead that only reaches peak performance above 15L/min?

Shower heads are delivering effective ablutionary capabilities using low water consumption that was previously thought impossible. Taps are effectively washing hands using outlet aerators and spout designs intended for ultra-low water flow rates without a dribbling affect.

And because of the new designs, it is important to understand what this does to a product. An older shower that was originally designed for 20L/min will suffer drastically in performance when condemned to the use of an 8L/min flow controller. However, a showerhead that was originally designed for only 8L/min may in fact see disastrous consequences if exposed to significantly higher flow rates. Rimless toilet pans flushed with higher pressures are susceptible to splashing around the surrounding floors.

Placing a flow controller, for example, in the wall elbow of a hand shower not only reduces the flow to the desired rate it was engineered to, but also reduces

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the dynamic flow pressure through the shower hose and hand piece. Removing it creates flow pressures not designed to be seen and could see premature failures in new innovative products with multiple spray patterns. Raising the water level in a cistern could create splashing problems on a carefully designed rimless pan. Or possibly empty the bowl of a toilet through a siphon that would not have originally existed at the originally designed water level.

LABORATORY OBSERVATIONS

The laboratory at PROVE has seen changes over the years where reputable companies looking to deliver quality products are looking for more than a simple tick in the box with test results. Having a pass result is no longer always a desirable outcome for a product looking to make a presence in the market. Careful checking of results for performance and comfort tests are becoming increasingly more

important to ensure that products do not just meet minimum performance requirements, but are also likely to meet expected consumer demands – because the two are not always aligned.

Water efficiency under the true definition of the term doesn't just happen by limiting water consumption. Efficiency is something that must be designed and engineered through proper product development to ensure that the same outcome is achieved using less input. Correct product installation from licensed plumbers is a key component to the result.

Attempting to alter a product that was engineered for low water consumption does not necessarily have the same benefits that existed 15 years ago. Removing a flow controller, increasing water levels in cisterns, or other tampering of products that used to eliminate nuisance calls from licensed plumbers could prove to be a double-edged sword. It could result in

returning to an installation to correct a problem that never actually existed.

Australia's consumers and licensed practitioners queried the relevance of the WELS scheme when it first became mandatory in 2007. However, our entire water industry should take a moment to be proud and reflect on how it has changed the development of plumbing products both here and abroad. Whilst the market in Australia is relatively small worldwide, the uptake of similar water conservation initiatives that have derived around the globe from Australia's WELS scheme has without a doubt changed the way engineers have designed the products of the future. ■

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