Water efficiency tips for your business
February 2020

AMENITIES

Toilets, urinals, showers and basins account for a large proportion of water use in commercial properties. Save water and money by ensuring your amenities are operating efficiently.

Water use in commercial amenities

The average daily demands of toilets, urinals, showers and basins can be as high as 155 litres per person in commercial and institutional settings.

Savings of 25 to 30 per cent can be achieved by improving the operating efficiency of these amenities. Installing water efficient appliances in high water use amenities and maintaining fixtures can be very cost effective.

Toilets

Public toilets can account for 15 to 40 per cent of total water use, depending on the type of business. A single toilet in a public amenity area is typically used 50 times per day, meaning savings of 50kL a year are readily achievable. Toilets are also prone to leakage which can go unnoticed or ignored for long periods.

It is important to understand the current system type in place at your facility so you can better determine the water saving opportunities. Various toilet flush types are currently used, including gravity tanks, flush valve operated and pressurised tanks.

Replacing an 11L single flush toilet with a 4.5/3L dual flush toilet can save about 11kL of water per person a year

WaterMark and the Water Efficiency Labelling Scheme (WELS)

The Australian Government introduced the WaterMark program and Water Efficiency Labelling Scheme (WELS) to aid in the selection of water efficient products.

For more information on WaterMark or WELS head to waterrating.gov.au

Water saving opportunities

Behavioural change

- Educating toilet users about the correct use of dual flush toilets is important to ensure maximum benefit is achieved. Using a full flush when not necessary, or repeatedly pushing the flush button, can create wear and tear on the system and cancel out water savings achieved by more efficient units.

Maintenance

It is recommended that an inspection should be carried out on toilets every six months to:

- check that overflow pipes are set for the correct flush volume for gravity fed tank toilets
- check that the flush mechanisms of gravity fed tanks are working correctly so that water will not continually leak into the pan
- check timing cycles and volumes for flush valve systems to eliminate excessive flushing, or retrofit a lower flow diaphragm if suitable. Automatic flushing should be aligned with the building's operating hours
- replace worn diaphragms, clean debris from the by-pass orifice, or bleed air from the line to stop slow leaks or continuous flushing occurring in flush valve systems
- check the relief valve setting and/or control lever water seals on flush valve systems to stop slow leaks
- check rubber cistern seals, which should be replaced approximately every two years before leaks occur.

Use qualified licensed plumbers with experience in commercial office buildings to perform the checks and undertake any plumbing work. They will know how best to adjust timing and flush volumes to suit available pressure and bowl design.

Equipment modifications

- Reduce flush volumes cost effectively by modifying the float arm or installing a displacement device. Ensure the toilet bowl will function as required using the reduced flush volume.
- Many single flush cisterns can be retrofitted with early closure flapper valves to reduce flush volumes. Ensure the toilet bowl will function as required using the reduced flush volume.
- Some pans with 11L cisterns can accept a simple replacement of a 6/3L cistern, however other bowls will not clean solid waste properly with the reduced flushing volume and will require a complete toilet suite changeover.

Equipment replacement

- The most effective solution is to replace inefficient toilets with a 4.5/3L dual flush system.
- Selected suppliers have manufactured 4.5/3L pans specifically for retrofitting applications. The new pans will cover the footprint of older pans, eliminating the need for redecorating, and come with adjustable tubing to avoid re-plumbing.
- Replace highest use toilets first to gain fastest payback.
- Know your plumbing infrastructure and match the type of toilet with the wastewater piping and water pressure.
- Adjust timing and flush volumes to suit available pressure and bowl design.

Urinals

Several types of waterless and low water use urinals are available, which can save thousands of litres of water each year.

Waterless urinals can cause issues with internal plumbing so it is highly recommended you consult with a qualified licensed plumber for independent advice to determine which urinal solution will be most appropriate for your building.

Water saving opportunities

Maintenance

- Educate cleaning staff to ensure waterless urinals are cleaned regularly using products and practices that do not damage pipe work, bio cubes (if used), or protective oil layers (often used to seal the waste trap vapours from the room).
- If using solenoid valves, ensure they are not suffering from pitting corrosion. If they are, replace them immediately. If these valves do not seal properly, water can pass through the valve even when shut, wasting water.

- Motion sensors require routine maintenance and adjustment in order to function well and be water efficient. Regularly check the operation of the sensor to ensure it is working properly and not being activated by general bathroom traffic or malfunctioning in any way, causing the urinal to flush continuously.

Equipment modifications

- Ensure your urinals are not on a set timer to flush regularly, as this can waste a lot of water.
- Installing individual sensor flush units will mean urinals flush only when required.
- You can reduce flush volumes to the minimum by adjusting or replacing valves. As little as 1–2L per flush may be adequate. Consult a licensed plumber to determine minimum flushing requirements.

Equipment replacement

To dramatically cut water use, replace cyclical flushing systems as a priority in maintenance programming.

- Water efficient urinals - High efficiency 6-star WELS rated urinals use less than one litre of water per flush and incorporate urine sensing technology.
- Waterless urinals - Waterless urinals do not consume any water during operation and rely on gravity, a bio agent and routine cleaning to treat the urine and clear the urinal surface. They generally resemble conventional wall hung fixtures, are easily retrofitted in existing installations and offer short payback periods.

Before installing a waterless urinal it is recommended that you:

- Familiarise yourself with the applicable rating systems and standards. WaterMark certification ensures water supply, sewerage plumbing and drainage goods (including urinals) meet relevant Australian Standards. These include AS3500.2:2003, which outlines standards for sanitary plumbing and drainage; AS5200.459:2004, which covers wall hung waterless urinals; and AS5200.469:2004, which covers waterless or limited flush urinals.
- Beware that urine breaks down to ammonia and can cause corrosion of copper piping. Any copper or copper alloy piping connected to a waterless urinal should be replaced with PVC piping, ensuring pipe work complies with Australian Standards. Waterless urinal systems can also increase scale formation in the waste piping system.
- Ensure the area is effectively ventilated to prevent odour.
- Consider the associated chemical and maintenance costs.
- Ensure there is enough slope in the urinal's drain line to avoid urine pooling, odour and build up of scale and sludge in the pipes. Confirm specific requirements with your licensed plumber.
- Where practical, other water using facilities such as showers or washbasins should be plumbed upstream of new waterless urinals to flush urine through the pipes to avoid struvite build up.
- Ensure you have good plumbing diagrams and are confident that pipes leading from the urinal are accessible if you need to maintain them.
- Consult a licensed plumber.

Showers

Depending on your type of business, showers may account for a large portion of water use on your site. This is particularly true of hotels, healthcare and recreational facilities. Installing water efficient showerheads and encouraging shorter showers is one of the easiest ways to reduce the overall cost of your water and energy bills.

Best practice showerheads are benchmarked as achieving flows of around seven litres per minute or less. A range of water efficient showerheads are now on the market, including water efficient rain showerheads (suitable for luxury facilities) and hand held showerheads (particularly suitable for hospitals and aged care facilities where mobility issues are an important consideration).

Water saving opportunities

Behavioural change

- Encourage people to take shorter showers, and aim for four minutes or less.
- Encourage people to inform maintenance personnel if they notice a leak. Display stickers or signs that encourage the reporting of leaks.

Maintenance

- Check showerheads for leaks and replace worn showerheads with efficient 3-star rated models on appropriate plumbing systems.

Equipment modifications

- Where low flow showerheads cannot be retrofitted, flow restrictors are a good option.

Equipment replacement

- Replace existing inefficient showerheads with 3-star rated models which only use about 5.5L per minute. These showerheads have a narrower spray area and a greater mix of air and water than conventional showerheads.
- It is recommended to consult a licensed plumber if you have thermostatic mixing valves or instantaneous gas hot water, as low flow showerheads can affect the hot water volume.

Taps and sinks

Several different types of taps are available to suit the vast range of potential end uses. When installing tapware, you should ensure the flow rate matches the desired end use.

Excessive unregulated flows will cause splashing onto floors, wasting water and causing safety hazards and unnecessary cleaning requirements.

6-star WELS rated tapware is available with flow rates as low as 3.2L per minute. Reducing flows from hot water taps has the added benefit of saving energy.

Water saving opportunities

Behavioural change

- Encourage people to turn taps off when not in use by displaying stickers or posters that inform them about the amount of water they are wasting when they leave a tap running.
- Encourage people to inform maintenance personnel if they notice a leak.

Maintenance

- Check flow rates and install restrictors to reduce water use where possible.
- Regularly check for leaks to avoid unnecessary water wastage.

Equipment modifications

- Aerators can be used for flow control on existing taps. Aerators screw onto the tap head and add air to the water flow. Water flow is reduced and washing effectiveness is maintained.
- It may be appropriate to adjust flow valves or install flow regulators in the hot and cold water feed lines to the tap where aerators are not suitable or where there is tap misuse.

Equipment replacement

- It is recommended that when replacing taps, the new tap has at least a 3-star WELS rating. Quarter turn taps with ceramic seats give greater flow control and are less prone to leaks.
- Consider installing fixed flow taps that deliver a set quantity of water when operated (eg. push button taps).
- Consider installing spring-loaded taps that shut off immediately after use.

Saving water in business

Visit **hunterwater.com.au/savewater** for more water saving tips for your business