

ENVIROWISE WATER MANAGEMENT LEAFLET

REDUCING WATER USE IN WASHROOMS: WCs



WHY THINK ABOUT TOILETS?

Significant quantities of 'domestic' water used in commercial premises results from flushing toilets. In the absence of urinals, this can account for up to 75% of water use in washrooms.

There are many water saving devices available to businesses which can help to reduce water use substantially. This leaflet provides guidance on what you need to consider and how to evaluate the best solution to meet your needs.

DON'T FLUSH SAVINGS AWAY!

An office fitted with 9-litre WC cisterns and employing some 100 staff can save over £500/year in water and sewerage costs by retrofitting a cistern volume adjuster such as a 'hippo' bag at minimal capital cost.

At Center Parcs Whinell Forest, cistern volume adjusters saving 1 litre of water per flush have been fitted to 740 toilets. This has resulted in water savings of over 1,000 m³/year and £756/year in sewerage costs. The payback was immediate as the devices were supplied free of charge by the water company.

REDUCING WATER USE

Many new WC suites available these days are specifically designed to be water efficient, for example, dual flush products with an effective flush of 3 litres. Most qualify for Enhanced Capital Allowances. However, in many cases a reduction in water use can be achieved by installing cheap and easy-to-fit retrofit devices to WCs, resulting in short paybacks. Bear in mind that when refurbishing washrooms many water efficient toilets are the same price as less efficient models.

Key considerations:

- When considering retrofitting flush devices in existing toilets, consult your supplier about their suitability for the specific application.
- Correct installation is important - a poorly fitted device may not reduce water use - in fact it may increase it!

- Is the mechanism robust enough to provide a long-term solution?
- Is maintenance required to ensure continued success? For example, are valve seals intact or ball floats working unhindered?
- Public perception is often a barrier - water saving devices can be stylish and do not compromise performance, if installed correctly.
- Any fittings to the water main need to comply with the Water Supply (Water Fittings) Regulations 1999.
- Are the products you are considering buying included on the Water Technology List (WTL)? The Enhanced Capital Allowance (ECA) Scheme¹ enables businesses to claim 100% first year capital allowances on investments in low flush toilets and retrofit flushing devices and can be found at <http://www.eca-water.gov.uk/>

The tables overleaf summarise the common types of water saving devices and approaches that are available.

Flush mechanisms

A number of different flushing mechanisms are currently available. These can either replace or be used to modify the existing flushing device.

FLUSH MECHANISM	ADVANTAGES	DISADVANTAGES
Siphon mechanism	<p>It may be more effective (and cheaper) to retrofit water saving devices to an existing siphon-operated mechanism than opt for a push button flush valve mechanism because:</p> <ul style="list-style-type: none"> • Less chance of leakage • UK plumbers are familiar with its installation • A faulty mechanism is easy to detect - the flush performance is poor • Low flush available (4.5 litre) 	<ul style="list-style-type: none"> • Incompatibility with retrofit depending on cistern design
Push button flush valve mechanism	<ul style="list-style-type: none"> • Allows use of a push button rather than lever for flush action and, therefore, easy implementation of separate buttons for full flush and short flush 	<ul style="list-style-type: none"> • Valve will eventually leak (which is hard to detect) • Poor installation can cause valve mechanism to stick • Not as robust as the siphon • May require maintenance to remove scale deposits • If problems occur the valve cannot be replaced with a siphon mechanism
Variable flush (siphon mechanism) <i>When flush is initiated, air valve fitted on siphon is open; when flush is complete, valve closes</i>	<ul style="list-style-type: none"> • Retrofit • Easy to fit • Savings of up to 45% (4 litres per flush) 	<ul style="list-style-type: none"> • Device costs around £20 - payback period around 1 year • Occasionally need to flush more than once to clear the pan • Generally, not very robust • Not always clear how to use the device correctly • Savings can be very variable
Dual flush (siphon mechanism)	<ul style="list-style-type: none"> • Two flush volumes 	<ul style="list-style-type: none"> • Device costs around £20 - payback period around 1 year • Occasionally need to flush more than once to clear the pan • Not always clear how to use the device correctly
Dual flush (push button flush valve mechanism)	<ul style="list-style-type: none"> • Choice of three flush volumes (4/2.6, 6/3, 6/4 litres maximum/minimum flush) • Can now be retrofitted to cistern installed before 1999 	<ul style="list-style-type: none"> • Poor installation can cause the buttons to be misaligned resulting in poor flushing • Buttons need to be clearly labelled to avoid confusion and misuse
Interruptible flush (siphon mechanism)	<ul style="list-style-type: none"> • User stops the flush (releases lever) when pan is clear 	

OTHER WATER SAVING DEVICES AND APPROACHES

DEVICE/ACTIVITY	POTENTIAL WATER SAVINGS	ADVANTAGES	DISADVANTAGES
Cistern volume adjusters (CVAs) (Also referred to as cistern displacement devices (CDDs))	Up to 2.5 litres per flush	<ul style="list-style-type: none"> • Cheap - can be obtained from water supplier at little or no extra cost • Can retrofit • Easy to install 	<ul style="list-style-type: none"> • Some of these devices deteriorate over time and should be regularly checked and replaced if necessary, otherwise water use may increase • Volume adjusters should not be used in cisterns which were installed after January 2001, as from this date, all installed cisterns use a 6 litre flush. Using a volume adjuster in these products will result in a poor flush and probably double flushing - using more water than necessary
Cistern dam Flexible synthetic material, partitions the cistern	Up to 30% (2.5 - 3 litres per flush)	<ul style="list-style-type: none"> • Cheap • Retrofit • Easy to install • Power of flush unaffected 	<ul style="list-style-type: none"> • Need to ensure a good seal - can be a problem where scale builds up
Delayed action inlet valve	Up to 0.5 litre per flush	<ul style="list-style-type: none"> • No water inlet during flushing • Retrofit 	<ul style="list-style-type: none"> • The delay period needs to be checked

FURTHER INFORMATION

- Envirowise water pages www.envirowise.gov.uk/water. Use WaterNet (www.envirowise.gov.uk/waternet) to identify the most relevant publications for your requirements.
- Water Supply (Water Fittings) Regulations 1999. SI 1999 No. 1148 (England and Wales) <http://www.opsi.gov.uk/si/si1999/19991148.htm>