

Resilient Building Toolkit Adaptation Measures Factsheet

Name and description of measure: Waterless Urinals

Rather than flushing urine and associated odours down the drainage system with water, waterless urinals use a sealing liquid and/or microbiological (usually in the form of cartridges) action to mitigate odours.

Microbiological Systems

- Replaceable cartridges use the action of microbes to break down urine into odourless components and use the trap or u-bend as the seal against odour from the drains.
- Regular sluicing is required to prevent blockages.
- Incompatible cleaning products should not be used, otherwise the system can be disabled, resulting in odours and blockages.

Liquid Barrier Systems

- Replaceable cartridges or in-built traps collect debris to help prevent blockages.
- An oil-based sealant floats on top of the urine to prevent odours.
- Infrequent sluicing is required, usually when cartridge is changed or urinal serviced incompatible cleaning products and water can break the seal, causing odours

Valve Barrier Systems

- Replaceable cartridges or in-built traps have a one-way valve or siphon to prevent foul air from entering the washroom.
- Most models combine a single valve with a microbiological block to help break down urine and omit scent. The GW6 (illustrated) has a double skirt valve.
- Regular sluicing or servicing is recommended to prevent blockages most, but not all, valve products are susceptible to damage by incompatible cleaning products. The latter should also not be used if a microbiological block forms part of the system.

Waterless urinals can also be retrofitted and work with a replaceable cartridge;

- The replaceable cartridge contains a chemical block which dispenses selected strains of harmless microbial spores together with cleaning agents
- Urine touches the block and carries the spores into the waste pipe. The spores are activated by the urine and become live micro-organisms (microbes).
- The microbes create enzymes to break down the urine so that they can 'feed' on the contents.
- 'Feeding' causes the microbes to multiply creating an environment that breaks down urine and is hostile to bacteria that cause the unpleasant odours.
- The trap of the urinal bowl becomes an odourless fluid seal, preventing smells from the drains entering the washroom.

Cost of measure (high, medium or low):

Comparison table of costs - <http://www.waterlessurinals.co.uk/Comparison-of-Waterless-Urinal-Costs.html>

Pros and Cons:

Pros:

Save water, therefore helping to reduce energy and emissions.

Reduce expenditure on water and related sewerage costs.

Improve hygiene and make urinals easier to clean.

No need to maintain flush control system, cistern or water supply pipes.

No floods.
Reduce incidence of waste pipe blockage.

Cons:

The supply pipes and cisterns become 'furred up' over time and require descaling to ensure a sufficient flush reaches each urinal.
Limescale combines with the uric acid salts in urine to form a hard scale, gradually blocking the waste pipes.
Bacteria can adhere to, and multiply in, the limescale film deposited on the surface of urinal bowls.

Effectiveness of measure (high, medium or low):

High

Photos:



Microbiological Systems



Liquid Barrier Systems



Valve Barrier Systems

Product review site:

<http://www.waterlessurinals.co.uk/>

Case study contact:

University of Winchester has installed waterless urinals. Contact Mat Jane, Energy and Environment Manager.

Additional information;

Guidance for assessing water savings - <http://www.waterlessurinals.co.uk/Costs-and-Savings/>