

Plumbing Regulation News Update

Plumbing Regulation News Update 14/2009

Issued: December 2009

WATERLESS URINALS and THE EFFECT OF FLOW REDUCTION ON PLUMBING AND DRAINAGE SYSTEMS

PURPOSE

The purpose of this Plumbing Regulation News Update is to advise industry, government agencies and consumers of the current research being conducted to investigate the effect that reduction of wastewater flows, in particular those from sanitary plumbing fixtures, is having on the performance of plumbing and drainage systems. It also provides limited advice about the installation and maintenance of waterless urinals.

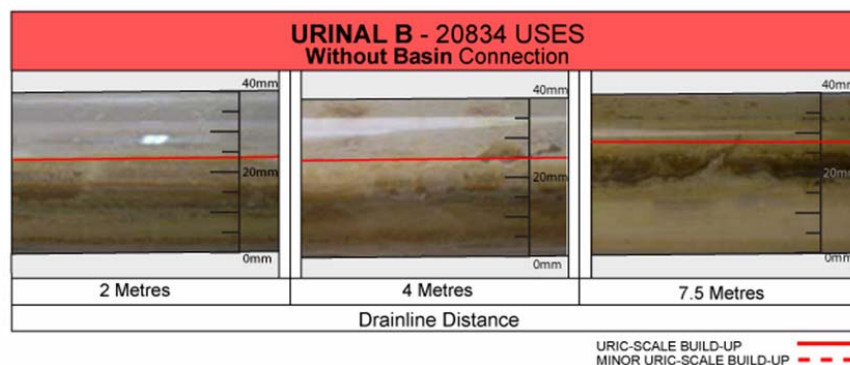
BACKGROUND

As a result of the combined effects of climate change, water conservation measures and increasing demand on water supplies, governments are endeavouring to minimize household and commercial water use. Reducing water flows in sanitary plumbing systems may have certain undesirable side effects, such as increased solids blockages or the build up of struvite (magnesium ammonium phosphate scale) in waste pipes. This build up can eventually cause major blockages immediately downstream of the urinal. Recent investigations indicate that some drainage systems are now reaching their designed performance limitations due to the reduced hydraulic loading on them.

CURRENT SITUATION

In order to conduct research and report on findings on the consequences of reduced flows, the National Plumbing Regulators Forum (NPRF) has formed a project committee called the Australasian Scientific Review of Reduction of Flows on Plumbing and Drainage Systems (ASFlow). The aim of the committee's research is to identify methods to improve system performance and to develop technical product and installation standards for achieving this.

Recent trials on waterless urinals facilitated by the committee identified that the build up of struvite is reduced considerably when additional fixtures are installed upstream of the urinal. As a consequence an amendment to AS/NZS 3500.2 has been prepared requiring fixtures to be installed upstream of waterless urinals. The amendment is likely to be published in 2010.



The NPRF has also produced two Advisory Notes: one in respect of the research into reduced waste water flows and the other in respect of waterless urinals. These Advisory Notes are attached to this Update.

ADDITIONAL INFORMATION ON WATERLESS URINALS

Properly designed and maintained waterless urinals fitted to appropriately designed and managed sanitary plumbing and drainage systems are unlikely to cause major problems, but where retrofitted urinals with reduced water flow are connected to existing or unsuitable systems, struvite build up may occur, and lead to blockages. It may not always be practical to install hand basins upstream of retrofitted waterless urinals and it may be necessary in some situations to provide supplementary timed flushes to increase the flow.

Waterless urinals require a different cleaning and maintenance regime from conventional urinals and cleaners will need to be appropriately trained to ensure that odour-seal cartridges are not damaged or compromised during the cleaning process.

The users of waterless urinals may also need educating in order to reduce problems and overcome prejudices. For example, users should be encouraged to direct the urine stream into the lower part of the bowl of the urinal in order to reduce odours from large areas of urine splashes on the upper part of the bowl. The use of 'aiming devices' such as an image of a fly in the porcelain glaze may have a positive effect in this regard. If a waterless urinal is properly designed and maintained odours are minimised and public acceptance of them will be increased.

The use of urinal cubes or biological urinal blocks in a conventional urinal with disconnected flush may cause excessively reduced flow and consequent scale build up where facility owners are unaware of the technical aspects of properly designed waterless urinals. Fixtures such as urinals should always be used in accordance with the manufacturer's instructions, and if a flush is provided, it should remain connected and be used, as failure to do so may lead to system failure and void any warranty. This is also in accordance with the Permit Authority's requirements at the time of installation, and any proposed changes from conventional urinals to waterless urinals require that the Permit Authority be notified through the plumbing permit process.

FURTHER INFORMATION

See attached NPRF brochures.

For more information about National Plumbing Regulators Forum (NPRF) activities, visit their website:

<http://www.plumbingregulators.org>

For more details about plumbing legislation contact the Workplace Standards Tasmania Helpline:

Phone: (in Tasmania) 1300 366 322 | Phone: (outside Tasmania) (03) 6233 7657 | Fax: (03) 6233 8338

Email: wstinfo@justice.tas.gov.au | Website: www.wst.tas.gov.au/building

Address: PO Box 56, Rosny Park TAS 7018

Plumbing Regulation News Updates are issued to assist in the interpretation of Tasmanian plumbing legislation and to provide advice on technical issues within the plumbing industry.

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NPRF ADVISORY NOTE

Issued 2nd November 2009

Waterless Urinals

Purpose

The purpose of this Advisory Note is to provide guidance to the Australian and New Zealand plumbing industry and consumers regarding the installation and maintenance of waterless urinals.

Background

In an effort to integrate water-sensitive urban designs into current practice the National Plumbing Regulators Forum (NPRF) for Australia and New Zealand formed the *Australasian Scientific Review of Reduction of Flows on Plumbing and Drainage Systems (ASFlow) Committee* to conduct research into the effects reduced flows are having on drainage systems.

The first stage of the project was to conduct research into the impacts of waterless urinal discharges. The NPRF ASFlow project committee has conducted a number of laboratory and field tests which have identified the potential for fitting and drainline blockages from Struvite (magnesium ammonium phosphate). Struvite is the main scale material which builds up immediately downstream of waterless urinals causing major blockages when not properly managed.

The trials have shown added flows to main pipes servicing waterless urinals will prevent rapid build-up of Struvite but highlighted the need for on-going maintenance of the urinal's outlet pipe at regular intervals to control the build-up of Struvite.

Current situation

The NPRF through its Technical Advisory Committee has facilitated an amendment to the Plumbing and Drainage Standards *AS/NZS 3500.2: 2003 Part 2: Sanitary plumbing and drainage* to manage the build-up of Struvite in sanitary plumbing and drainage systems. The amendment will provide provisions to minimise the risk of blockages by requiring a minimum of 2 fixture units e.g. 2 hand basins to be installed upstream of each waterless urinal. While this requirement will assist in preventing blockages of main drain lines the trials demonstrated it will not prevent build up of Struvite in the discharge pipe from the waterless urinal to the main drain line as discussed earlier.

At this stage it is recommended that facility owners and managers arrange for waterless urinals be inspected and cleaned at periods of no less than 6 months, until a more appropriate maintenance interval can be established for each facility. The maintenance interval will be dependent on a number of factors such as usage patterns, waterless urinal type, drainage design and other factors.



The above images show the build up of Struvite within 12 months of installation.

For further information contact the plumbing regulator in your state, territory.



NPRF ADVISORY NOTE

Issue: 23 November 2009

Australasian Scientific Review of Reduction of Flows on Plumbing and Drainage Systems (ASFlow)

Purpose

The purpose of this Advisory Note is to inform industry, government agencies and consumers of the current research being conducted to investigate the reduction of wastewater flows, in particular those from sanitary plumbing fixtures, have on the performance of plumbing and drainage systems.

Background

Significant reduction in water used by plumbing fixtures has been achieved in Australia over the past 25 years. Due to climate change, water conservation measures and on going stresses on urban water supplies, Governments are endeavouring to further reduce household and commercial water usage. Plumbing regulators from Australia and New Zealand and industry stakeholders are mindful of the effects these further reductions may have on plumbing and drainage systems as current practice is showing drainage systems are reaching their designed performance limitations.

As a result the National Plumbing Regulators Forum (NPRF) formed the Australasian Scientific Review of Reduction of Flows on Plumbing and Drainage Systems (ASFlow) Committee to conduct research into these effects and report on its findings.

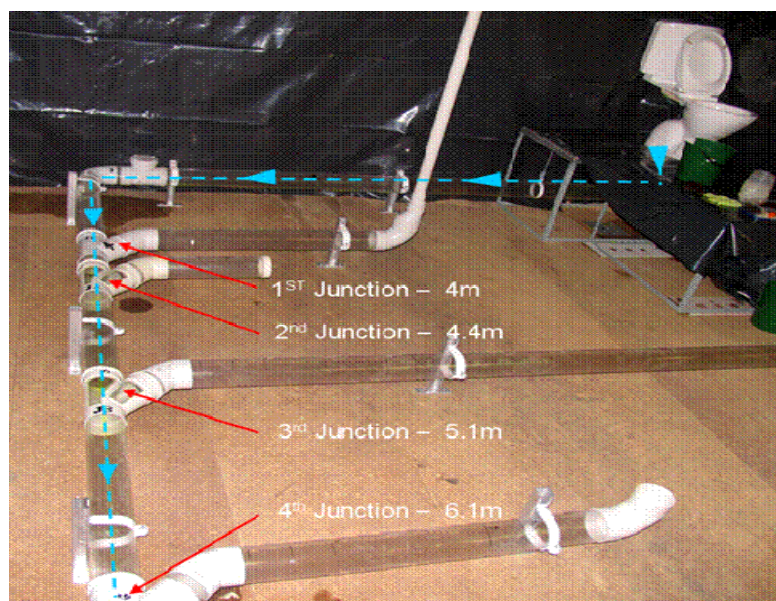
To address the effects reduced wastewater flows are having on sanitary plumbing and drainages systems the ASFlow Committee are conducting a comprehensive research study. The aim of this research is to identify methods to improve system performance and to develop technical product and installation standards for achieving this. It is anticipated that these revised technical standards will ensure current system performance levels are being maintained, while allowing new and innovative solutions to be developed.

Research partners include; Plumbing Industry Commission, IAPMO R&T Oceana, Caroma Dorf, Vinidex, Studor, Rehau, Philmac, L W Gemmell, Canberra Institute of Technology, Northern Territory University – School of plumbing and the Tasmanian Skills Institute - Claremont.

For further information contact the plumbing standards regulator in your jurisdiction.

NPRF

<http://www.plumbingregulators.org/>



Test rig at the Canberra Institute of Technology