



Urinals Water Usage Analysis Report For 240 Sandgate Road, Albion



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1 Objective of Report

Unitab Limited through Building Services Manager Ron Koks commissioned Gary Mays of Whywait Plumbing Services to undertake an analysis of water usage concentrating on water usage of urinals at 240 Sandgate Rd, Albion.

It is generally recognised that urinals use large amounts of water generally somewhere between 2-10% of total building usage with varying usage rates depending on the following:

- flushing system used in each installation
- location of automatic flushing systems
- building usage patterns
- maintenance level of flushing systems

The objective of this report was to analysis the water usage in a measured and timed way 5 floors of urinals to ascertain how much water is actually used in an urinal and whether substantial savings can be achieved through the installation of waterless urinals.

2 Methodology

An analysis was undertaken of 240 Sandgate Road and it was decided that water meters would be connected for a one month period to five sets of urinals to record usage patterns and water usage which would translate into estimated usage patterns for a full year.

Meters would be installed temporarily to the 20mm copper supply pipes which supplied water to the Zip automatic flushing sensor unit which were installed on each floor and provided the water supply for flushing three urinals in each block. The meters were installed on levels LG, 1, 3, 4, 7 for one month and then the readings taken, the meters removed and the section of 20mm copper pipe reinstated.

3 Actual Volumes

The meters were installed on 11 September 2006. The meters were read and then removed on 13 October 2006. Actual volumes recorded over this period were:

1. **Level LG** : This urinal block is situated in an area of the building that is open to transient traffic patterns and its usage patterns were not expected to be as high as other levels. Usage was 12.304 k/l thus if extended through

- to a yearly average this urinal block would use 147.648 k/l.
2. **Level 1** : Usage was 31.289 k/l thus if extended through to a yearly average this urinal block would use 375.468 k/l.
 3. **Level 3** : Usage was 28.340 k/l thus if extended through to a yearly average this urinal block would use 340.08 k/l.
 4. **Level 4** : Usage was 21.053 k/l thus if extended through to a yearly average this urinal block would use 252.636 k/l.
 5. **Level 7** : This urinal usage illustrates the issues with automatic sensor activated flushing units in that the usage here was 471.990 k/l. Obviously these urinals were being flushed almost continuously as there was a fault in the sensor unit. For assessment purposes this level will be given a yearly usage of 340 k/l.

4 Findings

The water consumption identified in each of the floor level urinal blocks confirms that the urinals do use a large measured amount of water that can be eliminated as long as it is eliminated by a correctly manufactured purpose built waterless urinal.

Waterless urinal installation will definitely save a combined total of at least 1456 k/l of water annually over the five floors of urinal blocks that were measured. Currently that direct water cost would be \$1994.72 based on a Brisbane Water charge of \$1.37 per k/l. The direct economic benefits are only realised to the fullest extent when all costs of operating a urinal are calculated to include not only water use but also the cost of chemicals and the maintenance costs such as those incurred in the operation of level 7.

5 Recommendations

To achieve a reduction in water usage in all of these floor levels on the urinal usage of water the only solution is to install waterless urinals.

In a new building there are significant capital expenditure reductions in installing waterless urinals. In existing buildings in a retrofit situation there is significant capital expenditure. If measured in pure economics in a retrofit situation depending upon water costs there is a payback of capital expenditure normally spread over a 3-7 year interval.

Servicing costs vary enormously over the various brands of waterless urinals. Generally the cheaper the urinal the more expensive the ongoing servicing costs appear to be. As a rule the servicing costs of a waterless urinal are no greater than those of a water flushing urinal if correct maintenance servicing procedures

are being adhered to.

6 Budget Costing

At this stage we have worked out budget costing to upgrade the urinals to ZeroFlush exclusive of council fees and GST and to ensure full compliance with the proposed level 5 water restrictions that are expected to come into force in January. The cost to remove 15 urinals and install 15 ZeroFlush ZF201 executive model waterless urinals including disconnecting all existing water connections, high pressure water jetting of waste pipes, undertaking 12 months of servicing and training of cleaning and maintenance staff is \$19607.



Photo above is ZF201 urinals installed at Enoggera Army Base where the existing wall urinals were removed, new drainage installed and water disconnected.