

Water re-use and efficiency in the NZ Housing Foundation's HomeSmart Home

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Greywater re-use

The HomeSmart Home was fitted with an Ecoplus™ greywater system which uses wastewater from the laundry and bathroom to flush the two toilets. The wastewater is decontaminated and stored within the system for reuse as needed but the toilets are also connected to the mains water supply as a back-up.



The greywater system was used by the family for 243 of the 257 monitored days with the family switching the system off when they left the house for several days. On average, the system saved 23 litres of water per person per day, reducing household use of reticulated water by 20%. It also removed 115 litres of wastewater per day from the waste stream and used 68 kW of electricity over a one year period.

Overall, about 30% of the total greywater produced by the household was used. This could be extended by using the greywater for irrigating lawn areas during the summer months, particularly once the rainwater tank is empty.

The family had no problems with the greywater system after an initial leak was fixed, and quickly got into a regular routine of putting the chlorine tablet in once a week when they put the rubbish out.

Rainwater harvesting

A rainwater tank of 4,500 litres was installed for garden watering. However, as the family tried to establish their garden in the newly developed area, the need to water the lawn quickly exhausted the tank.

Additionally, the rainwater tank sat at ground level where its outlet was too close to the ground. Placing the tank on a stand would improve access and give more water pressure.

A larger tank size would have optimised the financial benefits to the family. And, by plumbing the washing machine and toilet, the family would have enjoyed even lower water bills.

Using less water

The contributions of the greywater and rainwater systems were matched by using less water indoors. The HomeSmart home used water-efficient shower heads and taps and a 4 star dual flush toilet, rated to use 4.5 litres of water per full flush and 3 litres per half flush. The washing machine and dishwasher were both rated 4 stars for water efficiency.

The result?

The average water use per person per day was 117 litres per person per day, comparing well to the Waitakere average of 165 litres per person per day. Without the greywater system, the reticulated water usage would have been 140 litres per person per day. This result could have been improved by using an alternative water supply for the laundry or shower – normally these account for about 50% of total water use in the home.

For more information:

- Beacon website www.beaconpathway.co.nz/new-homes/article/water_conservation_in_the_homesmart_home