

COMPANY

Nexus eWATER Pty Ltd

LOCATION

Canberra, Australia

SOFTWARE

Autodesk® Product Design Suite Ultimate®

Harnessing the power of grey water

A pioneering on-site water and energy recycler for use in any home

When it comes to the physical construction and testing of prototypes, Autodesk software has saved us weeks and weeks, if not months, of time and, of course, a lot of money. We've been able to model performance virtually, and eliminate a lot of the bugs before we actually built anything.

—**Craig Richmond**
CEO
Nexus eWater



Image courtesy of Nexus eWATER Pty Ltd

Introduction

The World Health Organisation estimates that water scarcity affects one in three people on every continent. These figures are indicative of a spiralling global water crisis, and the world is in urgent need of solutions. Nexus eWater was founded in late 2009 by a team of five experts with decades of experience in the field of grey water, i.e. waste water from baths, sinks and washing machines. The group's ultimate goal was to address the critical need for more effective water use. The solution? The Nexus reHeater and the Nexus reCycler; a unique water and energy recycling system for domestic installations.

The global water crisis

Every year, more than 3.4 million people die from water related diseases, and 780 million people lack access to clean water. Incredibly, more people have a mobile phone than a toilet. In addition, it is estimated that heating, treating and transporting water accounts for about 15% of the carbon footprint of the United States, and

residential water heating accounts for 58% of water related carbon emissions. The problem is even compounded in water scarce regions such as California, where 20% of all electricity and gas consumption is linked to a water related activity.

According to information released by the Australian Bureau of Statistics (ABS), water prices have gone up 11% over the last year. In fact, the average price householders pay for water has risen from \$2.44 per thousand litres in 2010–11 to \$2.72 in 2011–12. In total, households spent over \$4.3 billion on water.

These statistics clearly underscore the need for better water management. According to Craig Richmond, CEO of Nexus, "We are committed to encouraging people to think about using water and energy more wisely, so we don't have to produce more of it. We have resources such as grey water in our homes that can actually help achieve those sorts of outcomes."

“The most exciting thing is that no other company is offering the ability to recycle water and energy in quite the same way. We are very confident that our product will have a real impact on water and power consumption,” says Richmond.

The solution

The Nexus eWater system harnesses the power of grey water, and combines two ground breaking, low cost technologies, the Nexus reHeater and the Nexus reCycler that can be sold separately or as an integrated unit.

In a nutshell, grey water contains a lot of heat, in some cases up to 35°C, which usually ends up down the drain. The Nexus reHeater utilises a heat pump to pick up the heat from the grey water and transfer it into the reHeater storage tank, where it produces very efficient hot water, reducing typical heating costs by up to 75%. The Nexus reCycler is a water conservation product that can reduce residential water use by an amazing 40% and reduce waste water volumes by up to 70%. It also produces clean and reusable water for irrigation and toilet flushing at a cost lower than tap water.

The Nexus eWater system reduces the need for fresh water, and can save a typical household \$100–200 every month. It also has the potential to lower demand on public water supplies, and lessen the amount of wastewater entering sewers or treatment systems, thereby reducing power costs.

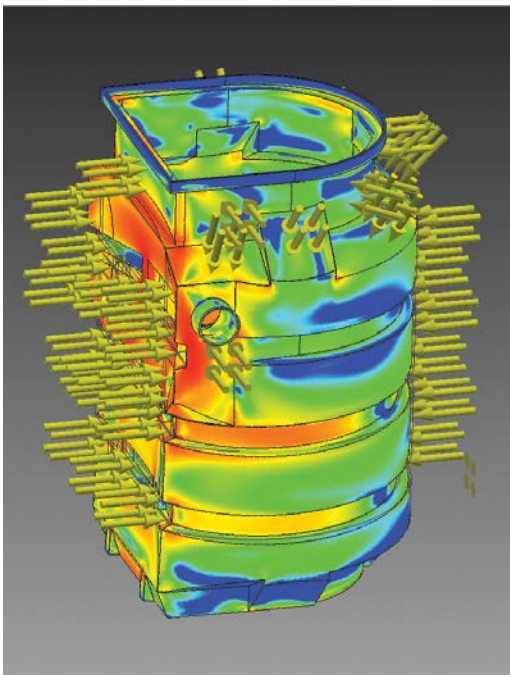


Image courtesy of Nexus eWATER Pty Ltd

Fast-tracking and product optimisation

The engineers at Nexus eWater were able to fast track their development program by using Autodesk® Inventor® to design, simulate and optimise digital prototype models before they were built and tested in the real world. This process helped the team to complete the process within mere days, an outcome which might otherwise have taken months.

“We’ve benefitted greatly from the Autodesk Clean Tech Partner Program,” says Richmond. “As a start-up company we didn’t have the financial resources to purchase the software needed to design and develop our product, so this kind of program is absolutely invaluable.

“When it comes to the physical construction and testing of prototypes, Autodesk software has saved us weeks and weeks, if not months, of time and, of course, a lot of money. We’ve been able to model performance virtually, and eliminate a lot of the bugs before we actually built anything. Also, we’re able to track any minor modifications we make during the prototype construction phase, and record those modifications onto the CAD software. It functions as an instant design update.”

“For instance, we’ve just introduced a product which is, essentially, a plastic tank that goes into the ground and holds the grey water. Moulds can cost tens of thousands of dollars to produce, so you have to make sure you get it right, first time. The Autodesk products have allowed us to smooth out any design kinks and just produce the one mould. At the moment, we mainly use Inventor but are looking to use even more Autodesk products, to develop an even wider range of manuals and materials.”

Smart thinking, where it’s needed most

A unique advantage of the Nexus eWater system is its dual functionality. While the Nexus reHeater and Nexus reCycler combine to create a complete solution, there are some parts of the world in which there is a greater demand for the product’s separate functions. For instance, in the south of the United States,

the dry conditions make water conservation a key issue. Conversely, in the north, where it’s colder and wetter, the focus is on efficient, cost effective water heating. The product will initially roll out in California, with plans to launch the product in Australia shortly thereafter. “The time for change is upon us,” says Richmond. “It’s time for us to look in our own backyard first and see what we can leverage.”

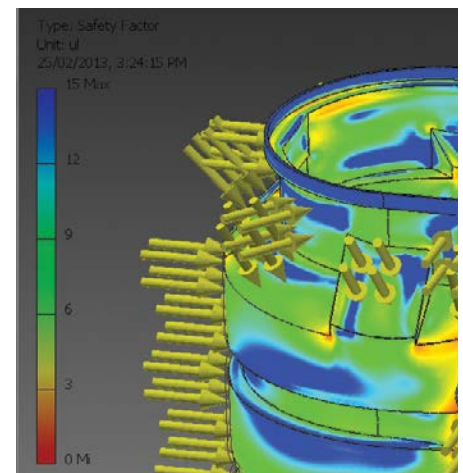


Image courtesy of Nexus eWATER Pty Ltd

For more information

To learn more about the Autodesk Clean Tech Partner Program, visit: www.autodesk.com.au/cleantech

Learn more about Autodesk Products Autodesk® Product Design Suite Ultimate: www.autodesk.com.au/suites/product-design-suite/free-trial