



Software Harvesting Rainwater Storage Systems

A DYNAMIC software program utilizing kinetic energy is helping buildings with large roof areas in Southeast Asia harvest and recycle rainwater. Freshwater scarcity and wastage is a global environmental issue, leading to nations such as Malaysia to seek siphonic drainage solutions to help recycle the precious resource. Researchers at the **University of South Australia** have developed a software package to help roof drainage companies construct highly effective systems across a range of major infrastructure. The Adelaide-based University's Pro Vice Chancellor of the Division of Information Technology, Engineering and the Environment *Simon Beecham* said the dynamic program was the first in the world to follow rainfall through its entire cycle to ensure complete effectiveness. Stadium Australia, which hosted the athletics and opening ceremony at the 2000 Sydney Olympic Games, was the first structure to utilize the technology. "Now a number of large buildings in Southeast Asia are using this technology, like the airports in Hong Kong and Kuala Lumpur. Malaysia has incorporated it into many of its shopping centers as well," Prof Beecham said. The Kuala Lumpur Convention Centre in Malaysia, which hosts a number of large conferences,



University of South Australia

exhibitions, and concerts, is another big adopter of the technology. The rainwater collected from the roofs is stored in large tanks and used to irrigate nearby fields or gardens. The recycled water is also used for the flushing of toilets to reduce the reliance on potable water. Prof Beecham partners with Australian drainage company **Syfon** to design state-of-the-art systems throughout Australasia. His software allows Syfon to calculate the size of drainpipes and locate where hydraulic chambers need to be placed. The company's name is a play on siphonic systems, the method it uses to harvest rainwater. Siphonic drainage systems convert open-air water mixtures into a pure water pressure system without any moving parts or electronics. Its hydraulic system allows the pipes to move large quantities of

water very quickly. Prof Beecham said siphonic systems were used because the high pressures they created reduced the amount of additional energy required to pump water. "Imagine if you had a pen in your hand and held it up and then dropped it to the floor. That's an example of a solid object converting its potential energy into kinetic energy," he said. "Water can do the same thing. You get a very efficient drainage of your water where the pressure is so great it can even go uphill, and it also means you can run horizontal pipes for long distances. Its clever design of the hydraulics system creates a vacuum that sucks water in and converts the potential energy of rainfall into kinetic energy." Siphonic systems require a building of more than three stories to work and cannot be applied to residential homes. ■

AIS Solutions on Show in Singapore

Australian owned and operated water disinfection technology manufacturer, **AIS** will be showcasing its range of residential and commercial, fresh, mineral and salt water chlorine generators at the upcoming Architecture

and Building Services Show on 28 – 30 September 2016 at Marina Bay Sands, Singapore. With AIS' technology already operating in over 50 countries worldwide AIS is putting the finishing touches on its new revolutionary

fresh water pool chlorinator for the residential market – EcoLine HOME – which it hopes to launch at the show. EcoLine HOME disinfects water via electrolysis using the natural salts and minerals already present in the water. It operates at ultra-low salinity levels of TDS 1,200ppm+ (rather than standard 5,000ppm required by salt water chlorinators). The end result is a swimming experience that is kinder to skin, hair and eyes as well as pool equipment and surrounds. It is more like swimming in fresh water than a 'standard' swimming pool. ■

