



FIGURE 1

## DRAINING THE MCG

**Gravity can give mixed results when it comes to standard drainage.** For the MCG Great Southern Stand it was not enough to adequately drain the seating plats, which meant rain and spilled drinks frequently ended up on the heads of people sitting in the lower levels. Avac Australia provided the solution, with a state-of-the-art vacuum drainage system.

The seating plat drainage system also has to cope with quite significant flows during washdown after events, but due to the high content of food and drink waste that goes along for the ride, this water must be treated before it enters the stormwater system.

Traditional downpipes wouldn't work for draining either rain and drinks or washdown water, as they block the view. And putting pipes into the slabs would have required major works.

Avac's system pulls the waste water back upward and transfers it to the grandstand core. The system features a PLC controlled vacuum centre and electronic field equipment, which monitors and controls the drainage in response to conditions in the plats.

From a construction point of view, Avac's system was a real winner, by providing a solution which minimised construction cost.

"Vacuum plumbing has several major advantages over gravity plumbing and waste systems, most of which can translate to cost savings. Virtually any building requiring drainage can realize construction, and operational cost savings through a range of features unique to vacuum plumbing," said Avac spokesperson, Marc Buman.

"The first of these features is flexibility. At the MCG Avac were able to route the gravity drainage lines and around obstacles with ease.

"Vacuum can pull water up a hill (see figure 1). Because downpipes were out and other alternative drainage systems were not capable of pulling water uphill, a vacuum drainage solution was implemented. Avac's system brings light rain and washdown water back upwards by as much as 5 meters. It is then sent to a vacuum plant room whereby depending on conditions is diverted to sewer or stormwater." The other positive result is users of the Grandstand will not have to wear whatever the people above them have spilled!

Avac Australia Pty Ltd is an Australian company that pioneered the use of land based vacuum drainage system in Australia and New Zealand in the 1990's. Previously, these systems had only been used for marine vessels and airplanes.

The Avac solution minimises the use of fresh water for toilet flushes, their AcornVac vacuum toilet for example uses just 1.9 litres per flush. This in turn contributes to a smaller water and sewage footprint for any building, improving the overall environmental credentials of any project for the long term.

Avac's versatile plumbing system also has benefits for designers and builders, as it offers far greater flexibility for piping layout for the drainage component of any hydraulics system, including grey water and sanitary sources. The systems can also be used for draining condensate from sources such as HVAC equipment.

The company's expertise and knowledge can deliver a state-of-the-art, reliable, cost effective and versatile plumbing system that is engineered to fit almost any building type, including new construction, retrofits, refurbishments and redevelopments. Because the pipework does not rely on gravity to function, the layout of the pipes can be more easily designed for incorporation into existing structures, without extensive and expensive structural modifications.

Other recent Avac projects include the Gatton Correctional Centre and Lotus Glen Correctional Centres, where the company installed vacuum drainage combined with the world's first full water management package. This will not only dramatically save energy and water in the long-term, but also reduced the project's construction time frames.

Avac design, engineer, manufacture and market a range of environmentally friendly plumbing and waste collection, conveyance and disposal systems suitable for projects across the commercial, health, education, recreation, industrial, residential and government sectors. They have recently opened a state of the art Vacuum Training Testing and Demonstration Centre in Brisbane which showcases their technology and allows potential clients and users to explore its practical and financial advantages.

For more information contact Avac Australia Pty Ltd, phone 1300 123 451, website [www.avac.com.au](http://www.avac.com.au)

