

PLUMBING CONNECTION

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A WEIGHTY ISSUE

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THE ABC OF INSTALLING AN RPZ



TAPPING INTO THE ‘DRAIN TRUST’

A CONSORTIUM OF INDUSTRY HEAVYWEIGHTS, INCLUDING THE STORMWATER RESEARCH GROUP, HAS REDEFINED THE TESTING MECHANISM FOR BALCONY AND ROOF DRAINS. **PLUMBING CONNECTION** REPORTS.

In the Autumn 2017 edition of *Plumbing Connection*, page 40, Dr Terry Lucke of the Stormwater Research Group [SWRG] at the University of the Sunshine Coast [USC] explained how much of Australia’s building and property flood damage is caused by undersized or inadequately designed grated balcony and roof drainage outlets.

The issue stemmed from the fact that many of these outlets and their associated components had had their flowrate capacity estimated using traditional methods that were based more on anecdotal evidence than by scientific research.

Now, the SWRG has completed a research project in collaboration with the Association of Hydraulic Services Consultants Australia [AHSCA] Research Foundation and Specialty Plumbing Supplies [SPS] of Sydney that could redefine the way that balcony and roof drainage outlets are designed and tested for use in the Australian construction industry.

The project aimed to develop a national testing protocol for grated balcony and roof drainage outlets used in the Australian construction industry. Currently there are many products on the market that have no recognised benchmark for testing.

“Having no recognised industry testing protocol means that roof drainage system designers must rely on performance data supplied by the manufacturer. This can have serious liability issues in the event of system failure,” says Dr Terry Lucke from the SWRG.

“By developing a national testing protocol to which products are then certified, AHSCA members can be confident that the performance characteristics quoted by a manufacturer are reliable.”

The second phase of the project was to use the newly developed AHSCA testing protocol to quantify the hydraulic behaviour and flow capacities of more than 40 of SPS’ proprietary grated roof and balcony drainage outlets under typical Australian rainfall conditions.

Water Management Solutions

SPS is the first company in Australia to have its products tested and certified under the new AHSCA Research Foundation test protocol.

In order to carry out testing, a fully functioning Outlet Performance Testing Rig (OPTR) was designed and constructed by Chris Cunningham at the SWRG. The OPTR was incorporated as an extension of the existing National Roof Drainage Research Facility, a facility jointly owned by the AHSCA Research Foundation and USC that is located at USC's Sippy Downs campus.

The OPTR has the ability to insert various types of roof drains with outlets ranging in size from 50mm to 150mm (nominal pipe size). An 80NB PVC ring main fixed to the tank perimeter is used to distribute water flow evenly around the drain outlet. Flow into the tank is measured using an 80NB electromagnetic flow meter, with a corresponding water level (head) from an ultrasonic level transmitter located above the water surface in the tank.



Scientific research rather than anecdotal evidence is delivering surety to projects.

Data from the flow meter [L/s] and water head [mm] is logged using four standard outlet pipe configurations connected to the roof drain and downloaded as raw data to a CSV file for development of a flow/head characteristic curve.

The OPTR was designed and constructed in a way that allows for roof and drainage grates to be interchanged with minimum modification, meaning that the SWRG in conjunction with the AHSCA Research Foundation can now offer the independent certification service to other manufacturers. ■

Contact the Stormwater Research Group at stormwaterresearch@usc.edu.au.

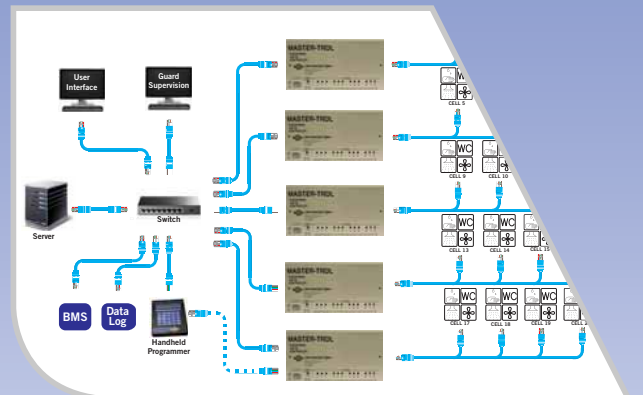
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