



Southern hemisphere's biggest green roof takes shape

Sika has provided the green roof waterproofing membrane for Australia's largest desalination plant as a part of the Victorian Government's soon to be completed construction project in Wonthaggi.

The green roof, covering a total area of 26,000 square metres and incorporating 100,000 plants, is the largest of its kind in the southern hemisphere and forms an important part of the project's landscape architecture. Providing acoustic protection, corrosion resistance, thermal control and reduced maintenance, the roof utilises the Sika Sarnafil system which creates a waterproof barrier for the lightweight, structural ply substrate.

According to Geoff Heard of Fytogreen, the green roof builder and designer, the site and scale of the roof presented a number of challenges.

"Weather hampering construction, design modifications to comply with the 1 in 100 year wind storm event for stability, and the lack of pre-existing green roof standards for Australia were all major considerations."

The thin profile green roof, requiring just a few inches of media, incorporates patterns using a rich tapestry of indigenous vegetation tolerant of high heat, salt drift, drought and wind. Located in a revegetated coastal park, the desalination plant required a design which made the structure barely visible from all public viewing points. The green roof helps to integrate the building into the environment and enables the continued bio-diversity of the site in its regeneration, acoustic moderation and storm water management.

"The waterproofing membrane had to allow for potential movement from kilometres of joints, for which the Sika Sarnafil 'G series' polymeric sheet is ideally suited," said Heard. "UV resistance was also required for a 25 year life span. And compatibility with the electronic ILD (international leak detection) system was paramount to enable quality checks to occur prior to Sika's handover to Fytogreen and after Fytogreen had completed its construction." Faulty seams are a common source of leaks in green roofs. Some waterproofing membranes use sealants, adhesives or tapes to secure the seams. Sika Sarnafil's membrane is thermoplastic, meaning seams and flashings are welded together using Sika Sarnafil's automatic hot-air welder, resulting in one monolithic layer of material that is impervious to moisture infiltration.

"Modern techniques for leak detection and high quality membranes like Sarnafil significantly reduce the perceived risk associated with green roofs," added Heard. "Adherence to a well-honed green roof construction method and ITP check procedure enabled 26,000 square metres of green roof to be installed without one breach of the membrane during the roof garden installation phase, a testament to the membrane quality and Fytogreen's attention to detail."

The waterproofing membrane will provide ongoing protection to the structure from the intensely damp environment, allowing for ongoing irrigation and resistance to root penetration.

"Green roofs are becoming a more common and desirable roofing option, turning some of our green-starved cities into an urban oasis," says Sika project manager, Jason Jansz. "As in this case, a green roof can also help to sympathetically integrate a larger structure into a more rural setting and encourage wildlife to flourish."

As the largest green roof of its type in the southern hemisphere, the Victorian Desalination Plant green roof will be the subject of two papers presented by Fytogreen and Aspect Studios for the International Green Roof Congress in Copenhagen in September 2012.

For a technical product guide or further information contact Sika Australia on 1300 223 348 or visit www.sika.com.au

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