



Versatile Landscape Products

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Beauty and environmental benefits meet on a rooftop

An environmentally friendly green roof crowns a stunning public structure in Singapore which was recently the recipient of a prestigious environmental engineering award.



Image courtesy of PUB

The Marina Barrage is a dam commissioned by PUB, Singapore's National Water Agency.

It has three major purposes: to boost Singapore's water supply, to alleviate flooding in low lying areas and to provide a new lifestyle attraction and venue for recreational activities.

The development recently received the top award at the American Academy of Environmental Engineers' Excellence in Environmental Engineering competition.

The award winning Marina Barrage project in Singapore.

The rooftop area is used for outdoor concerts and performances and as a picnic and recreation area for the complex's thousands of visitors.

Pivotal to the success of the structure is VersiCell®, an innovative drainage module that enables the grass to thrive without risk of compaction despite significant pedestrian and maintenance vehicle traffic. The modules also enable large volumes of water to be dispersed and drained rapidly, which is particularly important during Singapore's frequent, heavy rainfalls.

The VersiCell® drainage modules used in this project are made by landscape engineering innovator, Elmich.

"The installed area is equivalent to the size of four football fields," said Elmich Australia Pty Ltd's Managing Director, David Oliver. "VersiCell® drainage modules are lightweight and made of high-strength recycled plastic. They provide efficient drainage without the need to use heavy gravel and they also protect the waterproofing membrane. Furthermore, additional thermal and acoustic insulation results," he said.



The rooftop was planted with 15,000 m² of turfgrass.

Landscaping for the project was carried out by Nature Landscapes, one of Singapore's major contractors. A total area of 15,000 m² was laid with cow grass (*Axonopus Compressus*).

Elmich supplied the VersiCell[®] as well as the waterproofing membrane, Bitulen SK 347 for the Marina Barrage project.



Over two million m² of VersiCell[®] has been installed on various green roof and landscape developments worldwide. Projects include the Sydney Conservatorium of Music and the Melbourne Cricket Ground (Australia), Stanford Medical School and CalPERS HQ (USA), Wafi Mall and Dubai Mall (UAE), Paradise St Redevelopment (UK), Infosys Building (India), Putrajaya Convention Centre and Kuala Lumpur Convention Centre (Malaysia), and Republic Polytechnic and VivoCity (Singapore).

"Marina Barrage's graceful green roof is visually stunning and offers substantial environmental benefits that complement the overall eco-friendly design of the building," said David Oliver. "VersiCell[®] had a major part to play in the overall success of the project by enabling turfgrass to be planted in high use areas, and for rainfall to be drained and dispersed with great efficiency," he said.

VersiCell[®] drainage modules promote sub-surface drainage and protect waterproofing membranes.

For more than a decade, Elmich has designed and created innovations in landscape engineering. Working closely with specifiers and landscape engineering specialists, Elmich develops customised solutions for residential, commercial, infrastructural and industrial projects world-wide

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