

# Case Study Esplanade-Theatres on the Bay, Singapore



## A Cultural Asset. Singapore. alwitra.

October 2002 witnessed the grand opening of one of the most ambitious arts centres in the world: the Esplanade-Theatres on the Bay in the city-state of Singapore. As a centre for performing arts, the project consists of several halls. The theatre and concert halls are located directly on the bank of the Singapore River, next to a bridge linking the historical part of the city, the river and the modern commercial parts of the city.

The joint proposal developed by leading architectural firms DP Architects Singapore and Michael Wilford & Partners U.K. won the international tender to design the arts

centre. Around €350 million was spent on the project, which comprises a total net area of 75,190 square metres excluding the open space around the building.

The architectural design of the ensemble has a contemporary style, avoiding any reference to superficial ethnic symbolism. The centre combines the standard size and form of concert halls and theatres with expressive architectural features, which are specific to the local climate and the cultural environment.

The entire centre comprises of five performance venues – primarily a

2000-seat theatre and a 1800-seat concert hall; including three smaller studios and a 450-seat outdoor theatre on the waterfront. The principal idea is based on a three-sided creation, opening out from the central entrance hall and comprising the concert hall, the classical theatre as well as the smaller studios. All parts of the design have their distinct position in the structural hierarchy, with the entrance and a small round courtyard, which opens up to the waterfront, forming the centre of the object. The open design concept gives space for the most different approaches and trends.





Archways, balconies and roof terraces form the links between the larger individual elements. They reduce the overall impression to a more perceivable scale, while at the same time smoothly bridging the gap between the internal and external spaces.

The complex comprises a shopping and restaurant arcade, where you will also find a multimedia library for theatre, cinematography, music and ballet. The most prominent elements of the new arts centre are the twin roof domes of the two large auditoriums. These oval shaped buildings are spanned by a supporting steel grid, whose triangular metal sheets produce different graphical reflections depending on the light.

Not only the Klais organ but also the unique metallic facade and the flat roof waterproofing came from Germany. Around 30,000 square metres of flat roof area was covered with the thermoplastic

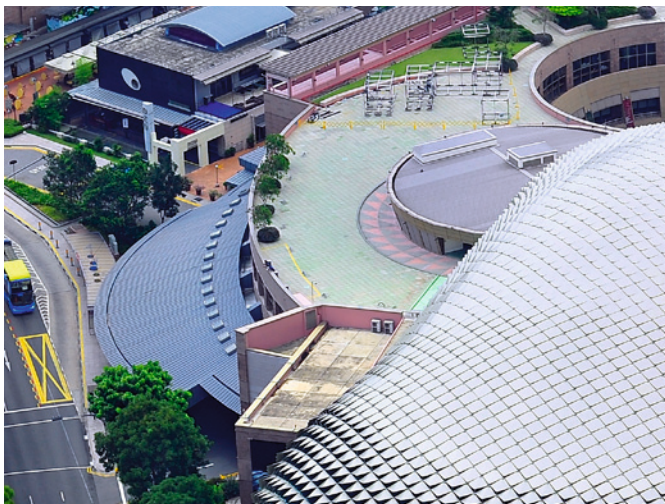
waterproofing membrane EVALON® manufactured by alwitra GmbH & Co. Trier, Germany and supplied by Elmich Pte Ltd.

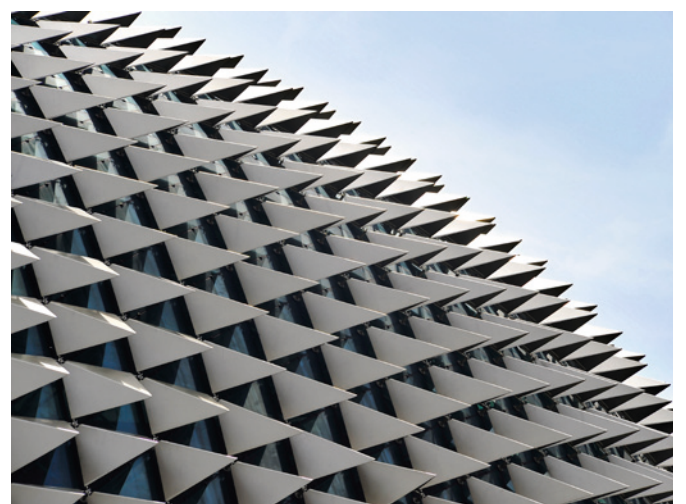
Along with the superb architecture, the designer and the owner – the Ministry of Information and the Arts – paid special attention to the quality of the employed building materials. The high-quality EVALON® membrane was the natural choice for the roof waterproofing of the Esplanade-Theatres on the Bay because of the professional installers employed and the excellent reputation of the membrane worldwide, including Singapore.

EVALON® membrane has a low vapour diffusion resistance that makes it ideal for the high humidity climate in Singapore and a British Board of Agrément durability rating of at least 30 years.

The thermoplastic EVALON® waterproofing membrane is suitable for single-ply

waterproofing on all types of flat roof configurations. The high molecular weight polymer alloy consisting of ethylene vinyl acetate (EVA) terpolymer and polyvinyl chloride (PVC) provides EVALON® with special product-specific features. A homogeneous elastic membrane, EVALON® incorporates a high content of high molecular weight solids that remain permanently stable over time. This ensures consistent quality, excellent durability, optimal balance between tensile strength and elongation, and guarantees both high heat and mechanical impact resistance. The bright and smooth surface is dirt-repellent, reflects radiant heat, is resistant to high levels of ultraviolet radiation and environmental chemicals and does not require additional protective surface coatings. EVALON® meets the requirements for resistance to flying sparks and radiant heat as stipulated in DIN 4102 part 4/7.





## Aesthetics. Function. Innovation. alwitra.

EVALON® membranes are compatible with bitumen and can be installed without any separation layer directly onto standard roof insulation materials including polystyrene rigid foam boards or other standard building materials. Available without backing, with polyester or combined polyester / glass fleece backing, or with a self-adhesive backing layer, EVALON® waterproofing membranes are easily and homogeneously welded together utilizing hot air or solvent welding application methods.

### Conclusion

Construction of the Esplanade-Theatres on the Bay, the new and largest arts centre in Southeast Asia, was not only a matter of setting new architectural trends. A comment from the famous conductor Kurt Masur is often quoted: “It is good news that there are still places on earth where investments flow into the arts, while elsewhere – and especially in Europe – compulsory cut backs take their toll. And this is detrimental not only to the arts but also to architecture

and thus to the building industry as a whole.”

However, quality always takes the lead - that is why Kurt Masur conducted one of the first concerts in Singapore in an arts complex with flat roofs waterproofed with EVALON®.



## alwitra. Roofing Inspiration.



### Project Credits:

#### Owner:

Ministry of Information  
and the Arts

#### Architects:

DP Architects Pte Ltd &  
Michael Wilford & Partners U.K.

#### Structural Engineers:

CPG Consultants Pte Ltd

#### Main Contractor:

Penta-Ocean Construction Co, Ltd

#### Waterproofing Specialists:

Elmich Pte Ltd &  
LH Waterproofing Specialists  
Pte Ltd





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