Esplanade Theatres on The Bay

Singapore

Architect
MICHAEL WILFORD

Completion Date
2002

Coverage
DOSING 20,000 CU.M. / 700,000 CU.FT. OF CONCRETE

Products
ADMIX C-1000 NF

Project Type
GENERAL CONSTRUCTION FOUNDATION

Great architecture often shines best when it imitates, or becomes part of its natural surroundings. And there can be few places anywhere where this is better demonstrated than on the bank of the Singapore River – the spectacular Esplanade Theatres on the Bay. Situated alongside Marina Bay, the Esplanade was built to be the centre for performing arts for the island nation of Singapore. The six-hectare complex houses a concert hall, theatres and studios, an outdoor performing arts plaza, restaurants, shopping malls and parking.

Designed by Michael Wilford & Partners and DP Architects Pte. Ltd., and built by Penta-Ocean, the charm of the design is that its distinctive shape mimics the durian, the prickly tropical fruit.

In the second phase of this project the foundation utilized secant pile construction with a "single side" formed wall poured against the piles. Xypex Admix C-Series was dosed in the concrete poured against the secant piles and the entire base slab. Xypex Admix C-Series was specified as the standalone waterproofing treatment for the walls and ground slab to create a tank foundation resisting both the high hydrostatic pressure and harsh marine environment of the site.

Xypex admixture treated concrete replaced the membrane assembly used in the first phase. During construction of the first phase Xypex was used extensively to fix leaking experienced in the membrane based secant wall assembly. Through the use of Xypex products and techniques the first phase was fully waterproofed.

Overall, the project proved an excellent example of value engineering. Xypex Admix, being part of the concrete mix, waterproofed the structure as the concrete was poured. This resulted not only in a fully waterproofed structure, but also helped to accelerate the construction schedule by approximately 3 months which resulted in both time and cost savings.