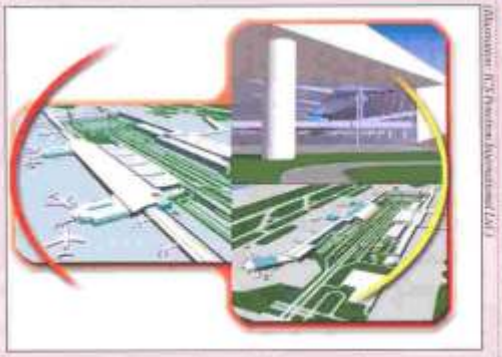
Singapore airport project on track

ICS Penetron International Ltd., a global leader in waterproofing products has completed its part in a major international project taking place at Singapore's Changi Airport. Penetron Admix has been applied to all concrete substructures of Terminal 3, a large part of the new airport that, when completed, will spread over seven levels, including a three-level basement, house 28 aircraft boarding gates and add another 1800 parking spaces. The airport is expected to be completed by 2007.



(Illustration: ICS Penetron International Ltd.)

Schematic of layout for the new airport at Singapore.

To waterproof and protect the 140,000m³ of concrete forming the foundation and slab at Terminal 3 they were coated with Penetron Admix along with partial use of two other components of the system, Penetron slurry and Penecrete mortar. The Penetron waterproofing system uses chemicals that fill cracks, voids and spaces to stop leaking yet still allow concrete to breathe.

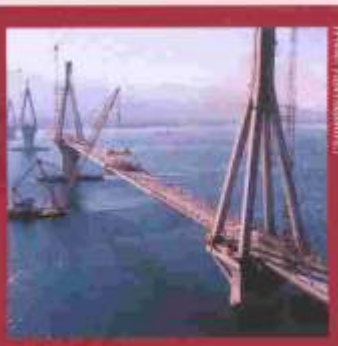
Photographic imaging process featured at the Smithsonian

(Photo: Intaglio Composites)

Concrete imprinted using photographic system.

A new photographic process in concrete by Intaglio Composites could revolutionise the aesthetics of architecture and concrete construction. Examples of this process are featured in an exhibition at the Smithsonian Museum, (National Building Museum), Washington DC. Using this process any concrete surface can be transformed into an artistic canvas. Intaglio Composites uses a high-performance, self-compacting concrete (SCC) to create a high-strength, dense, low permeability concrete. An unlimited range of pigments and additional pozzolanic materials are also used to produce a high-quality 'fair faced' finish to achieve the greatest contrast between the form or smooth surface and the etched Intaglio impressions in the concrete. In order to make the imprint permanent, a process has been developed that impedes the setup in the cement matrix where the photo image is located exposing the aggregate in the mix. Although the image is permanent, for maximum weathering and protection the use of high-performance, fully penetrating siloxanes are recommended.

The visual effects that can be achieved are limitless, for example, by imprinting the wall of a building with a photo of the side of a cliff, the building takes on a texturally dimensional appearance. A further example is a noise barrier for the Department of Transport which depicts the history of the area in a pictorial collage along the highway. For other examples of the imaging process visit website *www.intagliocomposites.com*



(Photo: John Manuel)

The cable-stayed Rion-Antirrion Bridge links the Peloponnese to the Greek mainland across the Gulf of Corinth.

Rion Bridge three months ahead of schedule

The final deck section of the Rion-Antirrion Bridge in Greece was in place three months ahead of programme. A temporary bridge, spanning the last missing expansion joint, enabled the Olympic flame to be carried over the bridge.

The bridge links the Peloponnese to the Greek mainland across the Gulf of Corinth and is located in an area of high seismic activity, crossing several active fault lines. The four main piers are founded on a geologically weak sea bed up to 65m below sea level. The four massive 90m diameter concrete foundations were cast in a dry dock and, using off-shore technology, floated into position. The three main spans of 560m and two end spans of 286m are supported from reinforced concrete pylons rising to 164m above sea level. The steel/concrete deck is continuous throughout its 2252m length resulting in expansion joints at each end with service movement capabilities of over 2.5m and ultimate movement capability (including earthquake) of over 5m. The approaches include a one kilometre composite viaduct on the south side, a 250m prestressed concrete viaduct on the north, a toll plaza with control and administration building and some 3km of connecting roads.

● Further reading:
ILEY, P., All set for Olympic flame, *Concrete Engineering International*, Vol. 8, No. 1, Spring 2004, pp.12–15.