Guest editorial

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In this the second issue of *Structural Concrete* we focus on the Øresund Fixed Link—now officially known as *Øresundsbron*. The name combines the Danish spelling of the sound and the Swedish word for 'bridge'. This, however, should not be taken literally, as only half of the 16 km coast-to-coast crossing is physically a bridge, the remainder being split equally between an artificial island and an immersed tunnel—more of that below.

Øresundsbron is a bridge between the third largest Swedish city, Malmö, and the Danish capital Copenhagen, between the Swedish region Scania and the Danish island Zealand, and between the Scandinavian peninsula and the European continent. When the link is opened for traffic on 1 July 2000 it will mark the completion of a four-lane motorway and a dual-track railway connection between Sweden and Germany. The land traffic corridor crosses the 18 km Storebælt Link, operational since June 1998, and the 1 km Lillebælt, spanned in 1935 and in 1970, fulfilling a centuries-old dream of bridging the three Danish straits, gateways to the Baltic but obstacles to north–south traffic. The projected average annual daily traffic of 11 000 vehicles and 140 trains will be composed of local, regional and international traffic, of which the first two components are the most important.

The opening of *Øresundsbron* heralds the birth of a bi-national region, comprising 3.5 million inhabitants, five universities and a powerful economic base in manufacturing, technology and services. The naming of this new region has been the subject of debate: various suggestions were floated, and surveys conducted, and in the end it was decided to use its current name, *The Øresund Region*. Foreigners will have to live with the Danish letter 'Ø' (pronounced as the German 'ö' or the French 'oe' or 'eu').

The papers in this issue of *Structural Concrete* deal mainly with the 4 km immersed tunnel: after all, it accounts for more than two-thirds of the approximately 1 million m^3 of concrete used in the construction of *Øresundsbron*. The client, Øresundskonsortiet—the owner and operator of the toll-funded link—specified the use of proven technologies, and these were used on an unprecedented scale. For example, the production of the precast segmented tunnel elements involved the movement of 55 000 t elements and match-casting of 2800 m^3 segments, concreted in one continuous pour. Other innovative features include the omission of an outer membrane for watertightness, the foundation on a screeded gravel bed rather than sand-jetting, and the use of longitudinal ventilation in the 4 km long tunnel tubes.

Another interesting aspect is the owner's approach to concrete specification and quality management. In both regards the contractors were given considerable freedom, but within a fairly rigid framework established by the owner. In no small measure this is responsible for the fact that *Øresundsbron* was completed before time, within budget and without litigation. There are thus important lessons for drafters of a future *fib* Model Code, which should incorporate construction and management aspects to a greater extent than Model Code 90.