



The Rion-Antirion Bridge—When a dream becomes reality

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Jacques Combault, born in 1943, has been working as bridge designer for more than 30 years, with Campeon Bernard and GTM, both being now companies of VINCI (France). Involved in the development of powerful construction methods, new structural concept and major projects abroad, he is currently Consultant and Technical advisor.

Summary

Opened to traffic in August of 2004, the Rion-Antirion Bridge crosses the Gulf of Corinth near Patras in western Greece. It consists of an impressive multi cable-stayed span bridge connected to the land by two approaches.

An exceptional combination of physical conditions made this project quite unusual: high water depth, deep strata of weak soil, strong seismic activity and fault displacements. In addition a risk of heavy ship collision had to be taken into account.

The structure has been designed in view of challenging severe earthquakes and ensuring the everyday serviceability of the link as well. To make the bridge feasible, innovative techniques had to be developed: The strength of the in-situ soil has been improved by means of inclusions; the bridge deck has been suspended on its full length, and therefore isolated as much as it can be.

Keywords: Bridge, multi cable-stayed spans, soil reinforcement, inclusions, yield theory, capacity design, push-over, dry dock, wet dock

1. Introduction

Located between the Peloponnese and the continent, at the entry of the Gulf of Corinth in Western Greece, the Rion-Antirion Bridge (Fig. 1) is intended to replace an existing ferry system.



Fig. 1 Aerial view of the Rion-Antirion Bridge