

New Developments in Brazilian Cable Stayed Bridges

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Summary

In the last decade in Brazil the development of the infrastructural network and the presence of large rivers led to the construction of many new bridges, the larger of which are cable stayed structures.

At the same time the urban development of many towns required the construction of new overpass structures that, in some cases, were the occasion of creating a landscape mark, and qualifying new and old areas.

This paper refers on some of these bridges, designed by the author and recently built, showing how the environmental constraints affected - in a quite different way - their design, and how the relationship between the bridge layout, that is its form, and the structural system were at the base of some design decisions. The main span of the three major bridges ranges from 200 to 320m; structures are prestressed concrete and, in two cases, composite steel concrete construction.

A discussion on the adopted construction systems and materials, as well as on durability and sustainability issues is also presented.

New bridges under design and construction will illustrate the more recent developments.

Keywords: Cable Stayed Bridges, Structural Systems.

1. Introduction

Road infrastructure in Brazil has seen considerable development in the last ten years. In the context of this development, cable-stayed bridges have proved to be both an effective structural system for spanning large rivers, and an opportunity to create monumental, land-mark structures in many cities experiencing social and cultural growth.

The aim of this paper is to illustrate several of these bridges, designed by the author over the last ten years, discussing the reasons behind the structural choices made and the environmental characteristics and construction traditions that influenced the bridge design projects.

The projects were often developed with the support of Brazilian designers, thus providing an opportunity for an exchange of technical know-how regarding cable-stayed bridges.

The design and construction of bridges have also given the Brazilian construction industry an opportunity to acquire considerable executive experience.