



Dune Bridge: Abi Bakr - Imam Saud Road Bridge in Riyadh

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Summary

Riyadh is under a complete transformation of the transportation network, to meet the needs of one of the fastest growing populations (8% annually over the past 40 years). The purpose of the project is to convert an arterial road into a freeway, requiring three-level interchanges at all main intersections, and to enhance the visual aspects of the urban design.

The soul of the Project is the concept of the “dune”, to support a singular vision of the streets-landscaping project, reflected in the morphology of this singular bridge, creating a representative image of the current transformation works. The bridge structure adjusts and corrects the theoretical bending moment curve; and by softening the peaks, it adapts forms that recall the geometries built by the wind in the sand. This dune concept is not only reflected in the main bridge structure, but also in pedestrian walkways, side-medians and pedestrian friendly areas.

The bridge was designed based on wave and dune shapes, while fulfilling structural requirements. Besides, lighting, textures, finishing, and colors have been carefully studied to become iconic. The result is a singular and representative bridge that gives character and identity to the area, contributing to build the image of the city.

Keywords: structural design, structural conception, aesthetics.

1. Introduction

Bridges are a fundamental part of the identity of built heritage [1]. Their connection with nature and their territorial quality make this a heritage that, although diffuse, is instrumental in building the cultural landscape of the place. Their specific features -scale, function, strict sense, types and processes- affirm their personality and relevance. Considering bridges through the lens of icon, opens up a comprehensive list of categories of values according to their character, from the social and historical to the aesthetic, symbolic and identity values [2].

Bridges make road visible. While in natural landscape bridges save natural obstacles, in the city they organize traffic crossings at different levels. In addition to its road crossing function, the bridge assumes a main role in the city identity. Urban bridges can become a landmark, an icon of the city. They have strong symbolic meanings; they can assume the city identity and even create emotional links with their inhabitants and users.

2. Abi Bakr As Siddiqe Road Project in Riyadh

Currently, with over 5 million inhabitants, the capital of the Kingdom of Saudi Arabia, the city of Riyadh, needs to transform its transportation system to meet the needs of one of the fastest growing populations (8% annually over the past 40 years).

In the last decade Riyadh has become a global city. The idea of identity and image is no longer defined by local parameters. The city now is composed of a number of “towns” within its boundaries and these naturally reflect plural images. This can be seen when Riyadh absorbed the smaller villages around it such as Dir’yya, also when the city expanded beyond the expected limit,