DOI: 10.24904/footbridge2017.09325

NEXT CONNECTS: BRIDGES AS SOCIO-CULTURAL PRACTICES

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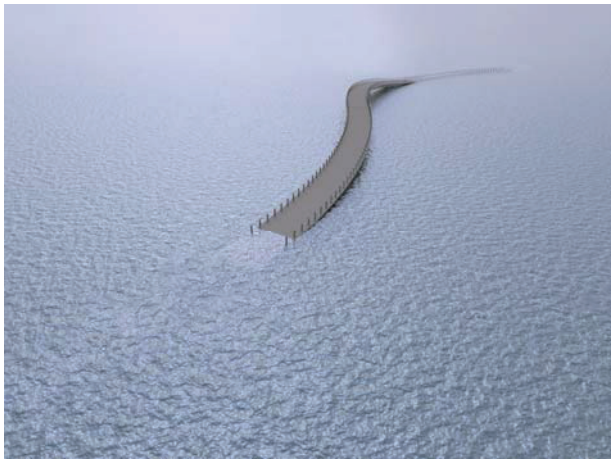

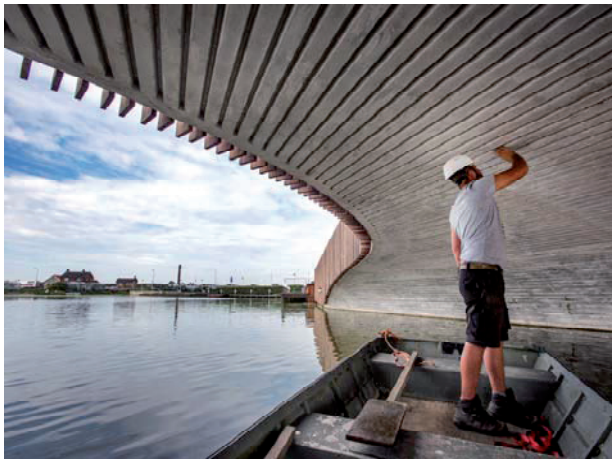

Figure 1 and 2: Zaligebrug (left) and Vlotwatering bridge (right) by NEXT architects

Summary

With global climate change and urbanization come new challenges. Water management and biodiversity are two notable examples of such challenges. This paper explores how bridge design can contribute to the way in which we experience and face these challenges. How can a bridge contribute to our understanding of the rapidly changing environment? How can a bridge add value to its environment? What is needed from architects, engineers, and constructors? How should they work together? To answer these questions, this paper takes a closer look at two pedestrian bridges designed by NEXT architects. NEXT is building an extensive portfolio of bridges that explicitly engage with their environments by 'connecting' to the landscape and working in a cross-disciplinary manner. Both bridges focus on a specific climate and/or ecological challenge: the Zaligebrug in Nijmegen (NL), and the Vlotwatering Bridge in Monster (NL). Taken together, these two projects make a case for bridges to be firmly anchored in their environments so that they can add value to the site. It is argued that to achieve this, an integral approach to bridge design is necessary, whereby all the different elements and disciplines are conceived and designed together.

Keywords: water; biodiversity; environment; landscape; integral design; cross-disciplinary; connecting; Zaligebrug; Vlotwatering bridge

1. Living with water

The Zaligebrug in Nijmegen is a key project within the urban river park that was created as part of Room for the River Waal, a nation-wide project initiated by the ministry of Infrastructure and the Environment to prevent flooding. The city was facing an urgent problem: near Nijmegen the river Waal makes a sharp bend and narrows itself in the form of a bottleneck. This was a critical point for the river, with high risk of flooding.

The Room for the River project solved this problem by moving the dike 350 meters inland. The displacement of the dike was combined with the construction of a lateral gully in the widened floodplains. This bypass created a new recreational island and a new urban river park. The Zaligebridge is the icon of the path that runs through the riverpark.

The Zaligebrug is designed as a continuation of the park's path structure on the water. Built on the floodplains, the softly curved bridge changes significantly with the seasons. When the water levels start to rise, the bridge partially submerges, thereby becoming inaccessible a few days a year. Within the river park, the spatial quality of the water is made visible in a poetic way. The bridge merges with its surroundings, radically changing people's experience of the changing river landscape.

Within the wider project Room for the River Waal and its urban river park, the Zaligebrug represents the project's holistic vision and mission. This national programme stands out because it successfully managed to turn a technical assignment of water safety and management into an opportunity to develop the quality of the area around the river. This was achieved by taking an integral approach and by connecting the different parties involved at the inception of the project. The Zaligebrug sets out to function as much more than a functional access point to the new recreational island; instead, it has an intimate relation with both the surrounding landscape and the river.

2. Integrating biodiversity

In view of increasing urbanization, safeguarding the diversity of our flora and fauna can be seen as one of the main challenges of the 21st century. The Vlotwatering bridge, also known as the 'bat-bridge', focuses on biodiversity, ecology and recreation. The bridge marks the entrance of the Poelzone: an elongated, green area through the vast greenhouse landscape that characterises the town of Monster. The Poelzone is crossed by the Vlotwatering and is transformed into an ecological and green area with a recreational value. Given the fact that the project is located along a flight route of several bat species, the characteristic Vlotwatering bridge brings together multiple purposes: both offering a scenic view over the Poelzone and forming an ideal habitat for bats. With this bridge, NEXT architects intentionally blurs the boundary between ecology and infrastructure, nature and recreation.

To design the Vlotwatering Bridge as an ideal habitat for several bat species, NEXT worked closely with the bat experts Herman Limpens and Marcel Schillemans (Mammals Association - Zoogdiervereniging). The bridge takes advantage of the properties of the materials, such as concrete, to provide a stable and pleasant climate for bats. The concrete's high strength, freedom of shape, and easy workability, make it possible to make a unique bridge that conforms to the environment and cycle path in both form and function.

Instead of starting from existing references or common solutions that merely add the ecological 'features' as a layer on top of the design, NEXT architects turned the ecological requirements into the basis for the design. In this process the experts from the mammal association were closely involved. The bridge was created through an integral and collaborative approach where the surrounding environment forms the backbone and the starting point for the design. As such, the key of the bridge's success lays in using ecology to come to a new architectural expression.

The Vlotwatering Bridge is more than the entrance to the park. By integrating different functions and by combining nature and infrastructure, the design for the bridge becomes an essential part of the park. This is also visible in the materials that were used for the bridge, which refer to the materials used in the park: organically shaped concrete forms, wooden slats, and bricks.

3. Bridges as socio-cultural practices

Besides their purely functional role as a structure spanning over a river or a road, bridges have a highly metaphorical quality. They connect in not only a physical sense, but also connect people, places, needs, and experiences. Both the Zaligebrug and the Vlotwatering Bridge are firmly anchored in their surrounding landscapes; they even become a continuation of the environment: a bridge as path or a bridge as habitat. This shows that the lines between the bridge as object and its context can easily blur. To achieve this degree of connectedness to the environment, it is crucial to see bridges not only as mere structural or engineering assignments, but also as socio-cultural practices that need to be approached in an integral manner by all parties involved.