Padre Anchieta Footbridge

San Cristóbal de la Laguna, Tenerife / 2018

Structural type	structural steel footbridge
Characteristics	circular elevated structure
Client	Cabildo Insular de Tenerife
Scope	tender design and detailed design

This work arises from the idea of solving a serious problem of pedestrian interconnection between different spaces and buildings at the University of La Laguna. The solution, which won an ideas contest, was conceived as a system of connections that simultaneously created a high-quality new urban space. With its circular configuration, the work efficiently resolves all pedestrian movements without extra cost. The structure has been designed with a U-shaped cross-section, whose lateral elements are larger in areas where the supports are farther apart, adapting to the existing functional and structural requirements. The exterior faces of the deck fold to improve structural behavior and to visually break up the outer faces of the section. The result is a work that robustly combines the circular body of the footbridge with various access elements, creating a unique urban space: the new square of the University of La Laguna.

GENERAL CONCEPT

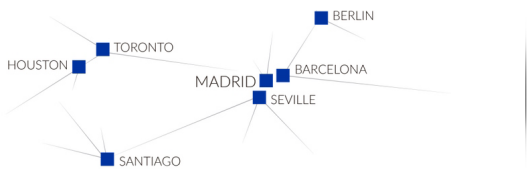
Faced with such a complex issue, FHECOR was aware that the optimal, ideal solution is rather utopian, which does not mean that one should adopt a resigned attitude, but quite the opposite. It was also established from the start that the objective is to find the best compromise solution among all the options available. From a structural point of view, the proposed solution is essentially a continuous curved beam in the form of a ring with an external diameter of 100 m, supported by a system of point supports arranged in locations that have the least impact on the roadways and, a priori, on services, which resolves all possible pedestrian movements between the various access points. To achieve this, a circular solution is proposed, with several ramps, stairs, and even an elevator addressing the peculiar characteristics of each access.

DESIGN

The deck of the footbridge has a useful width of 3.70 m and is constructed in steel. The cross-section is made up of a box-type beam with variable depth and a shape that changes to adapt to the existing functional and structural constraints. Thus, the greatest depth is always at the ends of the section, reaching a maximum value of 2.50 m, which is reduced until it disappears in those areas where the footbridge is opened to the exterior, at the accesses. The structure shows maximum depth on the outer ring in the areas closest to the TF-5 in order to improve pedestrian comfort by insulating them from road traffic noise. Conversely, when the footbridge is located above the carriageways, and for the same reason, the depth is at the inner edge of the ring, thus providing protection for the users. The deck is supported by a series of point supports made of reinforced concrete, situated outside the area of the TF-5 and the tram, so that foundations do not have to be built in a way that affects the existing infrastructure. FHECOR's aesthetic approach when designing a structure is to pay tribute to beauty through sobriety and structural sincerity, making no concessions to the superfluous and showing respect for what already exists. This approach, perhaps simple because it responds to the aforementioned Platonic concept of beauty ("the radiance of truth"), is essentially sincere. It is not about creating a sculpture; it is about defining a footbridge whose mission is to provide functional passage under the best possible operating conditions. Certainly, for an advanced society like the Spanish one we envision—and which already is—in an environment such as Tenerife, which is the setting for major architectural works, it becomes necessary that, among the services or qualities the work must have, aesthetics and the artistic expression that adds a valuable extra to the function of the work (what has been called "heritage value") are included, even if this notion is somewhat vague quantitatively but well understood qualitatively. A couple of additional considerations: first, we desire that the solution be compact, in the sense of being closed, without nooks and crannies, and with minimal exposed surface; second, we consider the symbolic value represented by the circumference, that geometric figure that carries a special magnetism, especially when it is superimposed on another conic shape such as the ellipse that constitutes the axis of the current roundabout. However, before delving into the symbolic, it is worth recalling that the purpose of the circular shape is to perfectly resolve all possible connections, as already happens in conventional roundabouts that have proliferated at our intersections since the 1990s, whose functional success seems indisputable. Yet there are symbolic reasons that cannot be ignored: the perfection of the circumference, which has no beginning or end, nor hierarchy or precedence, is not at odds with the richness provided by the contemplation of both the distant and the nearby landscape, the central roundabout presiding over the statue of Padre Anchieta, and, why not, the work itself. In short, the circular form endows the whole with a continuous geometric space of great visual dynamism. It is intended, as already noted, to accomplish more than simply solving a functional problem; it is also about creating and structuring a recognizable space with strong plasticity yet sober formalism. One of the objectives of the project is to create a work that endures over time. That is why a compact solution has been chosen, one that does not require special finishes since it is the structure itself that defines the urban space created. Since it is a steel structure, it is essential that the project incorporates details that prevent the accumulation of moisture or dirt that could affect both the durability and the appearance of the work, with a drainage system designed in accordance with the geometry of the structure.

EPITOME

It is understood that the proposal presented here resolves both the pedestrian crossings and routes indicated in the contest brief, as well as any other possible itineraries. The circular plan footbridge proposed offers great functional flexibility thanks to its multiple access points. The concept prioritizes the comfort of pedestrians and cyclists without compromising the improvement of the roadway capacity of the roundabout. Function and form come together here to highlight a structure that combines resistant efficiency, economy, and aesthetic quality, which we believe can meet the expectations of both the Cabildo de Tenerife and the future users of this work.



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