

USE OF PARAMETRIC DESIGN IN THE PROJECT OF HIGHLY COMPLEX GEOMETRIC FOOTBRIDGES: WORKFLOWS

Authors: José M. ORTOLANO¹, Jose ROMO²

Affiliation: ¹ Computational Designer, FHECOR Ingenieros Consultores, Madrid, Spain – jmog@fhecor.es

² CEO, FHECOR Ingenieros Consultores, Madrid, Spain – jrm@fhecor.es

Summary

One of the fundamental challenges for the designer of structures is to carry out designs that are at the service of the growing social and environmental needs of society. In order to do this, the designer must make use of creativity and ideas, using all available means to materialize those ideas in a specific design. In many cases, the intricacy of the problem to solve crystallize in highly complex geometric designs.

In addition to the technical complexities associated with complex geometries, one of the difficulties in dealing with this type of projects lies in the definition of a workflow that allows to efficiently coordinate the work of the different participating agents. In this sense, the use of parametric design tools provides a very efficient solution to guarantee the flow of information between the different agents involved. The implementation of tools that facilitate the exchange of information between existing models and the establishment of dependencies between them are key tasks when facing the project management of highly complex systems.

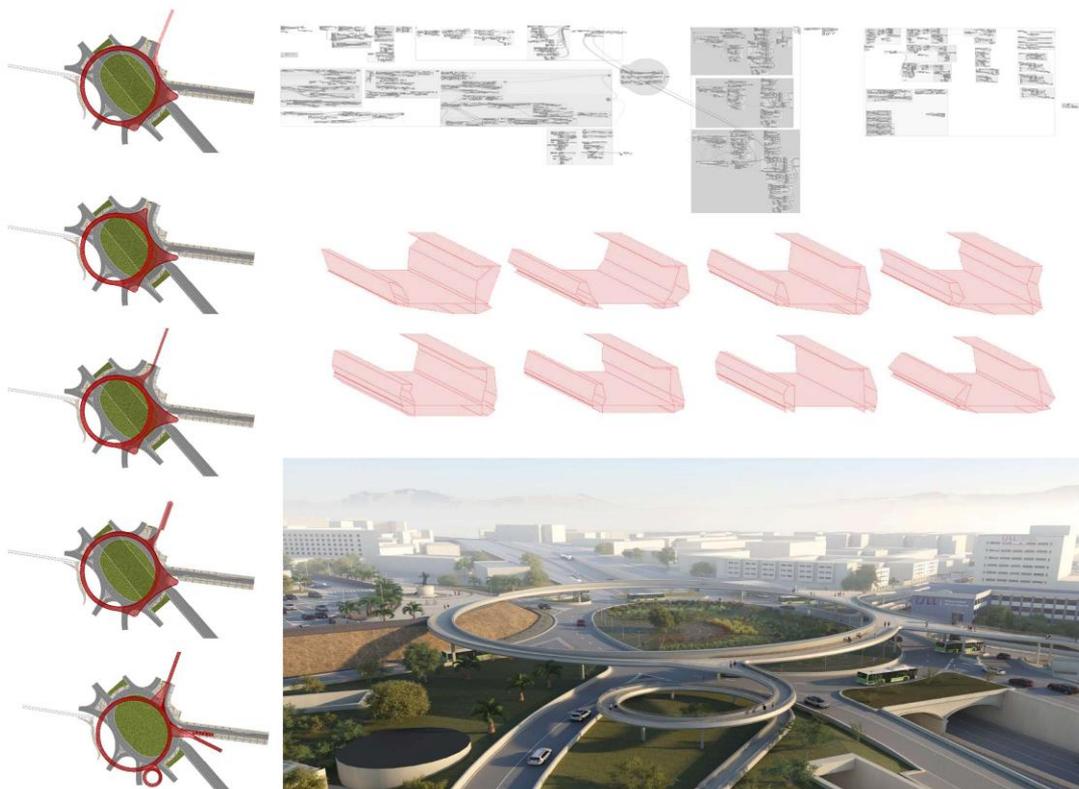


Fig. 1. Design of Anchieta footbridge (Tenerife, Spain), based on a workflow using parametric design tools.

The definition of a workflow based on parametric design is shown through the example of Padre Anchieta Footbridge (Tenerife, Spain). In this case, the parametric approach was included from early stages of design (design competition) and it was extended and adapted in order to complete the subsequent stages of the project (study of alternatives and detailed design).

Keywords: parametric design; project management; computational; footbridge; Computer-Aided Engineering; workflows; geometry.