

A Prefabricated GFRC-UHPC Shell Pedestrian Bridge

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Abstract

This article is about research and development for a GFRC and UHPC shell bridge. The bridge is developed to be mostly site-assembled from prefabricated shell and deck parts. Thereby, a mostly “Dry,” field-connected, concrete shell assembly is being achieved. The parametrization of the form and the structural design, materials engineering, prototype production, testing, and method development will be presented and discussed in the paper. The study is made to develop a fast, economic, elegant, and sustainable bridge solution. It is mostly developed for the need in remote areas and countryside anywhere around the world, where valley and road crossings can be achieved with minimum preparation prior to bridge assembly and, where it is hard to bring local resources at the location.

References

- [1] Mike Schlaich, “Shell Bridges – A New Specimen Made of Stainless Steel,” *Journal of IASS*, Vol. 59, pp. 215-224, 2019.
- [2] Juan P. Osman-Letelier, Arndt Goldack, Mike Schlaich, Daniel Lordick, Jakob Grave “Shape Optimization of Concrete Shells with Ruled Surface Geometry Using Line Geometry,” in *Interfaces: Architecture, Engineering, Science, Proceedings of the IASS Annual Symposium 2017*, Hamburg, Germany, September 25-28, 2017