

## New Structural Frontiers for Self-Compacting Concrete: The Tevere River Bridge

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## Summary

The design concept of the Tevere River Bridge is a combination of many construction technologies: pushing deck method, upper concrete arch, steel formwork arch and arch core made by self compacting concrete. After finishing the launching deck process the arch is built using a steel shell internally stiffed by longitudinal and transversal trusses.

The arch steel shell formwork is assembled on provisional supports, made by steel trestles, resting on the concrete deck. The concrete core is a self compacting concrete (SCC) because of the workers' safety as they don't have to go inside the arch for concreting.

This construction system allows us to built bridges with spans longer than 250 m. We can take advantage from the concrete low cost and short construction time combined with an architectural shape, the arch, that is agreeable and proper for the environmental impact (Figure 1).

**Keywords:** arch bridge; self compacting concrete; post-tensioning.



Fig. 1 *Rendering of new Tevere Bridge*

## 1. Introduction

The bridge over the Tevere river is part of a future highway connecting the cities of Rome and Latina. It connects the Great Ring Connection of Rome (GRA) to the Cisterna-Valmontone highway for a total length of about 50 km. The Tevere Bridge is situated between the interchanges km 1+061 and km 1+836.