

Shaping of Multi-Span Concrete Viaducts in Urban Areas

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Summary

The majority of viaducts constructed in urban areas are concrete beam viaducts with spans of 25.0÷60.0 m. Due to the specific location of these viaducts, their elevations as well as the structural solutions applied in them are visibly accessible to the users of the transport infrastructure. When shaping such viaducts, it is thus essential to pursue their positive aesthetic reception, meeting the reasonable cost requirement. The material presented in this paper may inspire a debate binding the above-mentioned issues. Conditions for standard bridge architecture have been presented. The paper provides also examples of pier and span shaping in urban concrete viaducts (mainly prestressed concrete viaducts designed by the authors) as well as commentaries on particular solutions. Final conclusion have been drawn.

Keywords: Concrete viaducts, urban areas, shaping

1. Introduction

The majority of viaducts constructed in urban areas are concrete beam viaducts with spans of 25.0÷60.0 m. Due to their location, their elevations as well as the structural solutions applied in them are visibly accessible to the users of the transport infrastructure and of the public utility facilities [2], [3], [4], [5]. When shaping such viaducts, it is thus essential to pursue their positive aesthetic reception, meeting, at the same time, the reasonable cost requirement, maintaining the predomination of function for standard structures, and, finally, keeping in line with efficient construction technologies and with future maintenance requirements.

For bridge constructors, spans – their shapes, lengths, and the applied construction technologies – appear to be the most important elements. Yet, it is a structure as a whole that should be considered in terms of shape of the piers, their arrangement and clear spacing, and the function of the terrain under the piers.

Material presented in this paper may, through examples of viaducts constructed in Poland in the recent period and designed by the authors, inspire a debate binding the above-mentioned issues.