

World Congress and Exhibition on Construction & Steel Structure

November 16-18, 2015 Dubai, UAE

Steel versus steel-reinforced concrete bridges

Yassin AL-Kour K&A Beirut, Lebanon

The competition between steel and steel-reinforced concrete bridges can become very decisive when it comes to the specific prevailing geotechnical subsurface conditions and to the design criteria that can be adopted in designing a safely bridge foundation. Heavy concrete elements that come from a steel-reinforced concrete superstructure develop tremendous stresses which will, in turn, compress the soil underneath profoundly. This results in excessive settlement that, in most cases, the bridge superstructure cannot tolerate unless a super pile foundation design has been pursed. This paper will illustrate the real benefits of selecting light bridge superstructure for waterways and viaducts and finally highlight the sustainability and more economically efficient in the long run. Case history examples, when light weight steel bridge structures were favored over heavy steel concrete structure system, will be presented. This paper will conclude with recommendations and guidelines for structural bridge designers to use in their rules of preference when it comes to selecting the of bridge structural type for waterways and viaducts structural system.

Biography

Yassin AL-Kour is a Senior Geotechnical Engineer in K&A Lebanon. He is the member of Professional Societies Order of Syrian Engineers (OSE), Member of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE), Syrian Soil of Mechanics Society (SSMS) and also Syrian Society of US Graduates (SSUSG). He has 25 years of experience in the geotechnical engineering domain.

yalkour@gmail.com

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