

OA666 IN LUXEMBOURG - HIGH STRENGTH STEEL FOR A VERY SLENDER HIGHWAY DECK IN TIGHT CONSTRUCTION SITE: A MODERN ANSWER TO A FUTURE TYPICAL PROBLEM

R. Zanon¹, D. Rademacher²

¹ArcelorMittal Global R&D, 66 rue du Luxembourg, L-4009 Esch-sur-Alzette, Luxembourg.

²ArcelorMittal Europe – Long Products, Steligen® Construction Engineering, Esch-sur-Alzette, Luxembourg.

e-mail: riccardo.zanon@arcelormittal.com

SUMMARY

OA666 bridge on the new part continuing the A4 highway in Luxembourg towards France (structure completed in 2017-2019) shows the interest steel-concrete composite solutions for modern infrastructure projects. The deck is extremely slender: the central parts spans 50m with a constant structural height of 1.35 m. The geometry is a bit complex since the road axis follows a clothoidal path with a minimum radius of 640m in the horizontal plane and crosses an existing roadway with a variable skew angle. The construction site is encircled by existing local roads and a lake. The steelwork (total weight 1300 tons, total length 126m) is realized entirely in S460 thermo-mechanical steel with material thicknesses up to 100mm.

Keywords: *Steel-Concrete Composite Bridge, High-Strength Steel, Welding Procedure, Slender Deck, Highway Bridge.*

1. INTRODUCTION

1.1. Geographical situation and framework

The so-called project “Liaison Micheville” belongs to an important infrastructure framework project between France and Luxembourg with the scope to increase the road and railway capacity across the border. In fact, there is a significant number of commuters (estimations range between 75 000 and 100 000 according to the sources) living on the Southern side and moving across the border daily for working reason. This flow causes not only a significant congestion (impacting negatively the economic productivity) but also a relevant safety issues in particular in the winter season.



Fig. 1. Geographical location (left) and sky view of the Belval industrial area (right).