OMICS International
conferenceseries.com

J Civil Environ Eng 2015, 5:5
http://dx.doi.org/10.4172/2165-784X.C1.003

World Congress and Exhibition on
Construction & Steel Structure
November 16-18, 2015 Dubai, UAE

Heavy sections–tailor made solutions and high strength steel: Recent developments in bridge applications

R Zanon[1], **T Demarco**[1], **G Axmann**[1], **P Hubsch**[1], **Y Hoschet**[1], **C Houyoux**[1], **AMiazzon**[2] and **P Duley**[3]
[1]ArcelorMittal Europe, Luxembourg
[2]M Ingegneria, Italy
[3]Bouygues TP, France

Long products may be rolled as tailor-made shapes in order to fit specific customer needs. For heavy sections, the concept was firstly developed in 1979 at the rolling mill of Differdange, in Luxembourg. The production implies the adaptation of the rolling stands for stock sections concerning the geometrical shapes, as well as the heating and cooling process concerning the mechanical properties. The first application of these heavy sections was as columns for high-rise buildings, where the connection of high strength steel with optimized cross-section thick-nesses leads to substantial weight and cost savings. Several skyscrapers around the world used this technology. In latest years, this concept has been successfully implemented also in some remarkable bridge applications. In particular, three high-speed railway bridges on the Cotour-nament of Nimes and Montpellier, as well as the launching equipment for steel deck on the Saint-Petersburg ring were developed with tailor-made sections. In these cases, the intrinsic fatigue resistance as well as in-shape stability of rolled sections is major factors that make these products highly competitive. Another factor of interest, the tallest H section ever rolled in history were developed as tailor made for one of these railway bridges. In this paper, in a first step the industrial process of tailor-making in connection with a classic rolling mill for heavy shapes will be explained. The technical limits as well as some rolling constraints will be discussed. Furthermore, some future projections concerning developments in shape and steel grades will be given. In a second part, it will be presented an historic overview of the main heavy sections applications over the last decades up to the newest relevant projects, showing when and how these products reveal to be advantageous. Recent applications for major bridge projects will be discussed in detail.

riccardo.zanon@arcelormittal.com

Estimating project over-runs due to common construction delays using daily productivity impact index

Gupta R, **Jain P**, **Das S** and **Singh A**
Birla Institute of Technology and Science-Pilani, India

Analysis of the causes of delay in construction projects has been a subject of extensive research in the past. The quantification of their corresponding effect on construction productivity and progress of the project has also seen research in the form of multiple case studies. However, concrete and simple ways whereby planners, contractors and other stakeholders in a construction process can use this research to predict overruns in a construction project have not been developed. In this paper, the authors have developed a simulation model that uses input from the user, knowledge of common construction delays and their effect on productivity to generate and estimate the deviation of a construction project from its theoretically calculated duration. The same has been demonstrated by application to case studies, and the results thereby discussed which are matching with the actual duration of the project.

rajiv@pilani.bits-pilani.ac.in