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Long span steel built-up girders, precast prestress and post-tensioned systems from the design and constructability perspectives

The most popular system for supporting long-span roofs is steel truss in commercial buildings, such as warehouses and aircraft hangars. There are numerous advantages of steel trusses, such as lightweight, ease of handling and erection, and geometric flexibility. However, there are some drawbacks, in terms of the material selection during the design time and material availability during the construction phase, maintenance cost, and low fire resistance. Hence In this presentation, Precast Prestress and Post-Tensioning Concrete and steel built-up box girders would be presented as an alternative to steel trusses for spans up to 40 to 50 m without intermediate supports. The design behavior and constructability perspective by illustrating by the help of CONCISE V 4.47h model. This proposed design is easy to produce, fabricate and erect and has lower construction and maintenance costs than steel trusses. the proposed design. A finite element analysis of the specimen is conducted to investigate stresses at long span precast prestress and post-tensioning and steel built-up girders. Further, the complicated transportation and erection sequence would be illustrated with practical examples to erect the heavy, long span beams.

Biography

M Manikandan is the Sr. Structural Engineer-1 at Gulf Consult-Kuwait with responsibility for Designing and Construction Consultation of the tall buildings, Colleges, Shopping Complexes, Multistory Car Parks, Hospitals, Bridges and Deep Underground structures by considering the Structural requirements and adequate construct able systems to complete the projects within allocated budget and time schedule. Prior to joining Gulf Consult-Kuwait, he has worked as Structural Engineer at several companies, including RECAFCO-Kuwait, SAEED HADI ALDOOSARY EST-Saudi Arabia. He has received PhD in risk management in International Construction Projects as an external part-time researcher with Vels University Chennai, India, on March-2017 and received civil engineering degree from Kamraj University Madurai-India on April 2000. He has received MBA in Project Management from Sikkim Manipal University-India in 2012. His professional interests focus on Construction/Project Management, Structural Management and Risk Management in the construction projects and his current projects include Kuwait International Airport Project, College of Engineering and Petroleum, College of Science and College of Business for women in the Sabah Al Salim Al Sabah University City, Shadadiya-Kuwait and he has published 50 papers in International and National Journals and Given many keynote speeches about Skyscrapers, Risk management and constructability's considerations in the international conferences.

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