International Journal of Engineering, Management, Humanities and Social Sciences Paradigms (IJEMHS)
Volume 30, Issue 02, Quarter 02 (April to June 2018)
An Indexed and Referred Journal with Impact Factor: 2.75
ISSN (Online): 2347-601X
www.ijemhs.com

Abstract Details

Title: Modelling of Steel Structures

Authors: Jyoti and Jaswant Singh

Abstract: This document gives guidance on the creation of computer models for steel structures with orthodox details and connections in order to produce safe, cost effective, real structures. It is primarily aimed at structural engineers using readily available analysis software. It highlights the importance of a qualitative understanding of structural response both during the creation of the analysis model and whilst appraising the analysis output. After a general introduction to the elastic, plastic and elastic-plastic analysis of two and three dimensional frames, separate chapters address the modeling of: Simple beam and column frames, Trusses and lattice girders, Portal frames, Curved, tapered and non-homogeneous members, Connections, Supports and Loads. It also provides guidance on simple checks to ensure the analysis is correct and an overview of member design for the less experienced designer. This document is limited to the modeling of general building and plant structures of normal proportions under static loading. Offshore structures, masts, bridges, shells and plates are not covered, nor is grillage analysis. The guide concentrates on first order analysis programs. Second order analysis is discussed, but both the analysis and the type of structure requiring second order analysis are outside the scope of this document. The fabrication industry reports increasing incidences of designs that are overly complex, resulting in expensive fabrication details and a loss of cost effectiveness. In some cases designs have been presented which do not represent reality.

Keywords: Steel Structures, Buckling, Serviceability Checks.