

## Effect of Stiffeners on the Behavior of Slender Built up Steel I-Beams

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**Abstract :** This paper presents the effect of stiffeners on the behavior of slender steel I-beams. Nonlinear three dimensional finite element models are developed to represent the stiffened steel I-beams. The well established finite element (ANSYS 13.0) program is used to simulate the geometric and material nonlinear nature of the problem. Verification is achieved by comparing the obtained numerical results with the results of previous published experimental work. The parameters considered in the analysis are the horizontal stiffener's position and the horizontal stiffener's dimensions as well as the number of vertical stiffeners. The studied dimensions of the horizontal stiffeners include the stiffener width, the stiffener thickness and the stiffener length. The results of the achieved numerical parametric study for slender steel I-beams show the significant effect of stiffeners on the beam behavior and its failure load.

**Keywords :** beams, local buckling, slender, stiffener, thin walled section

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