Effect of Corrugated Sheets as Shear Diaphragms on Stability of Steel Frames

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Abstract

The present study discusses the effect of corrugated steel sheets which is used to cover most of the steel frames on the stability of the structures. The research was carried out using the famous finite element program (ANSYS 9.0) and the results extracted from the program are compared by the mathematical derivation. It should be noted that the only two types of frames are used in carrying out this research: (Portal Frame and Gable Frame). The present study offers the following advantages: The corrugated steel sheets support efficiently the frames in the out of plane direction. The corrugated steel sheets may be used as a substitution for the bracing systems. The steel sheets behave as a shear diaphragm and have a major effect in the out of plane direction compared to its effect in plane direction.

Keywords

Steel Corrugated Sheets , Finite Element Analysis ,