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AN EVALUATION OF 100+30 METHOD TO CALCULATE SEISMIC RESPONSE OF STEEL STRUCTURE BUILDINGS

Author(s): **Leila Shahryari, Abdolrasoul Ranjbaran, Ali Mansoori**

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Abstract:

One of the main concerns of structural engineers is determining the critical direction of seismic load on a structure which includes the most possible responses of different elements. This direction is not necessarily the main direction of the building. Building codes have proposed different methods for this matter. One of the suggested methods is the 100+30 method. In the present study, by modelling steel structure buildings using the ETABS software and performing linear spectrum analysis, and by changing the angles of lateral load application, the critical responses of different elements were calculated and compared with the results in the 100+30 method. The results showed that the effect of changing the angle on the axial force of the columns is more significant than the forces of the bracings and beams. It is also shown that in the 100+30 method, the resulting values for columns in regular buildings are higher than the required values, while for columns in irregular buildings the resulting values are lower than the required values. Finally, a modifying method is presented according to the shape of the plan and the type of the lateral force resisting system.

For full paper, contact:

Prof Muhammad Masood Rafi

Editor-in-Chief, NED University Journal of Research

Ph: +92 (21) 99261261-8 Ext:2413; Fax: +92 (21) 99261255

Email: NED-Journal@neduet.edu.pk

Website: <http://www.neduet.edu.pk/NED-Journal>

