

## **An Improved Amplified Sway Method for Semi-Rigidly Jointed Sway Frames**

**Authors :** Abdul Hakim Chikho

**Abstract :** A simple method of calculating satisfactory of the effect of instability on the distribution of in-plane bending moments in unbraced semi-rigidly multistory steel framed structures is presented in this paper. This method, which is a modified form of the current amplified sway method of BS5950: part1:2000, uses an approximate load factor at elastic instability in each storey of a frame which in turn dependent up on the axial loads acting in the columns. The calculated factors are then used to represent the geometrical deformations due to the presence of axial loads, acting in that storey. Only a first order elastic analysis is required to accomplish the calculation. Comparison of the prediction of the proposed method and the current BS5950 amplified sway method with an accurate second order elastic computation shows that the proposed method leads to predictions which are markedly more accurate than the current approach of BS5950.

**Keywords :** improved amplified sway method, steel frames, semi-rigid connections, secondary effects

**Conference Title :** ICSC 2022 : International Conference on Steel Construction

**Conference Location :** Istanbul, Türkiye

**Conference Dates :** July 28-29, 2022