

ABSTRAK

Pada studi ini dilakukan analisis terhadap kinerja struktur bangunan baja bertingkat (5, 10 dan 15 lantai) dengan 3 variasi tipe pengaku diagonal (Inverted V, Single Diagonal dan X-Bracing) dan gedung terbuka. Analisis dilakukan dengan bantuan software SAP 2000 v14. Hasil dari analisis ini akan dibandingkan dari 4 tipe gedung dan 3 jenis ketinggian. Melalui studi analisis ini dilakukan perbandingan perpindahan dan simpangan masing-masing gedung. Gedung dengan tambahan pengaku diagonal memiliki nilai perpindahan yang lebih kecil dibanding struktur gedung terbuka. Gedung dengan tipe pengaku diagonal *X-Bracing* mampu mereduksi perpindahan paling besar dengan presentase 30,78% untuk gedung 5 lantai, 25,16% untuk gedung 10 lantai dan 18,84% untuk gedung 15 lantai. Taraf kinerja struktur bangunan tiap gedung lantai rata-rata termasuk dalam *Immediate Occupancy* untuk semua variasi pengaku diagonal. Hal ini menunjukkan bahwa penggunaan tipe pengaku diagonal Single Diagonal paling efektif dapat meningkatkan kekakuan, kekuatan dan stabilitas struktur.

Kata Kunci : struktur baja, bracing, perpindahan, simpangan, kinerja

ABSTRACT

In this study conducted analysis of the performance of high rise steel buildings (5, 10 and 15 floors) with 3 variations of type diagonal bracing (Inverted V, Single Diagonal and X-bracing) and open frame structure. Analysis done with the help of SAP software 2000 v14. The results of this analysis will be compared to 4 types of buildings and 3 types of height. Through this analysis study carried out comparisons of displacement and deviation of each building. The building with the addition of a diagonal confessor has a smaller displacement value than the structure of the open frame structure. Building with diagonal bracing *X-Bracing* type, it is able to reduce the greatest displacement with a percentage of 30,78% for the 5-storey building, 25,16% for the 10-storey and 18,84% for the 15-storey building. The average performance level of all the building structure is included in Immediate Occupancy for all variations of the diagonal multiplier. This suggests that the use of a diagonal *X-Bracing* type most effectively can increase the rigidity, strength and stability of the structure.

Keywords : steel structures, bracing, displacement, byway, performance