

ABSTRAK

Judul: Kajian Efektifitas Sistem Perkakuan Dinding Geser + Outrigger Gedung Beton Bertulang Berlantai Banyak (Studi Kasus : Apartemen 20 Lantai – Aceh)”,
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Bangunan berlantai banyak merupakan struktur yang rentan terhadap gaya leteral. Salah satu akibat yang ditimbulkan adalah gedung akan mengalami simpangan antar tingkat dan *displacement* yang melebihi batas aman yang sangat membahayakan. Untuk menahan gaya lateral dapat digunakan sistem perkakuan *shearwall*. Sebagian besar atau 75% beban lateral dipikul oleh *shearwall*, sehingga membuat dimensi *shearwall* menjadi besar, Oleh karena itu dipasang *outrigger shearwall belt* untuk memperkecil tebal *shearwall*. Kajian ini bertujuan untuk memperkecil displacement dan simpangan antar tingkat dengan penggunaan *shearwall belt* diketinggian optimum dalam menahan gaya gempa. Model 3 & 4 (*Shearwall + Outrigger*) setelah dibandingkan tidak jauh berbeda menghasilkan nilai paling optimum kekakuan struktur terbesar dengan nilai simpangan antar tingkat dan *Displacement* paling kecil diantara model lainnya. Nilai *displacement* lantai paling atas arah X memiliki presentase 51% lebih kecil dari Model 2 (*Shearwall*). Model 3 & 4 memiliki berat bangunan yang lebih ringan 2% dari berat struktur Model 2 (*Shearwall*).

Kata Kunci : Outrigger, Shearwall Belt, Dinding Geser, Sistem Ganda, Analisa Respon Spektrum, Struktur Atas

ABSTRACT

Title: Study of the Effectiveness of Shear Wall Stiffening System + Outrigger Multi-Story Reinforced Concrete Building (Case Study: 20 Floor Apartment – Aceh)”,

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Multi-story buildings are structures that are susceptible to lethal forces. One of the consequences is that the building will experience deviations between levels and displacements that exceed the safe limit which is very dangerous. To withstand lateral forces can be used shearwall stiffening system. most or 75% of the lateral load is borne by the shearwall, thus making the dimensions of the shearwall large, therefore an outrigger shearwall belt is installed to reduce the thickness of the shearwall. This study aims to minimize displacement and drift between levels by using a shearwall belt at the optimum height to withstand earthquake forces. Models 3 & 4 (Shearwall + Outrigger) after being compared are not much different, resulting in the most optimal structural stiffness value with the smallest deviation between levels and Displacement among other models. The displacement value of the top floor in the X direction has a percentage of 51% smaller than Model 2 (Shearwall). Models 3 & 4 have a building weight that is 2% lighter than the weight of the Model 2 (Shearwall) structure.

Keywords: Outrigger, Shearwall Belt, Shear Wall, Dual System, Response Spectrum Analysis, Superstructure