ABSTRAK

Dinding geser adalah sistem struktur yang memikul beban-beban gravitasi pada pelat dan beban lateral seperti beban angin dan gempa pada struktur bangunan. Penempatan lokasi dinding geser memiliki peranan penting terhadap perilaku bangunan bertingkat saat beban gempa terjadi. Ketika dinding geser ditempatkan di lokasi tertentu yang tepat dan strategis, dinding tersebut dapat digunakan untuk memberikan ketahanan beban horizontal yang diperlukan, sehingga sangat penting untuk menentukan lokasi dinding geser yang efisien dan ideal. Perhitungan beban gempa dan respon struktur dengan metode dinamik *time* history merupakan salah satu metode yang akrat untuk mengetahui perilaku struktur akibat gempa yang sebenarnya dikarenakan dalam analisis dinamik juga memperhitungakn massa, kekakuan, dan redaman. Gedung FMIPA Unimed merupakan gedung perkuliahan 10 lantai dengan sistem struktur sistem ganda. Pada gedung FMIPA Unimed terdapat enam dinding geser dimana empat dinding geser dengan total panjang 14.75 meter diletakkan pada sumbu-x, dan dua dinding geser dengan total 4.525 meter diletakkan pada sumbu-y.

Untuk menentukan pengaruh letak dinding geser terhadap simpangan pada gedung FMIPA Unimed, maka enam dinding geser pada gedung FMIPA akan diubah letaknya menjadi 2 model, kemudian di analisis dan dilihat pengaruh perilaku gedung karena perubahan letak *shearwall* akibat beban gempa menggunakan metode *linier time history*.

Dari hasil analisis simpangan yang dilakukan menggunakan analisa gempa time history didapat bahwa simpangan antar lantai rata rata untuk setiap model adalah sebagai berikut: Gempa Trinidad (Gedung Eksisting X = 25.21 mm; Y=38.45 mm , Gedung Model 1 X = 30.22 mm; Y=35.05 mm, Gedung Model 2 X= 24.61 mm; Y=35.58 mm), Gempa Manjil, Iran (Gedung Eksisting X = 24.77 mm; Y=34.56 mm , Gedung Model 1 X = 27.27 mm; Y=31.42 mm, Gedung Model 2 X= 21.01 mm; Y=34.19 mm), Gempa Tottori, Japan (Gedung Eksisting X = 27.03 mm; Y=38. 61 mm , Gedung Model 1 X = 26.98 mm; Y=34.95 mm, Gedung Model 2 X= 26.40 mm; Y=32.56 mm)

Kata kunci : Dinding geser, *linier time history*, *dual system*

ABSTRACT

Shear walls are a structural system that carries gravity loads on the slab and lateral loads such as wind and earthquake loads on the building structure. The location of shear walls has an important role in the behavior of multi-storey buildings when earthquake loads occur. When shear walls are placed in certain precise and strategic locations, they can be used to provide the required horizontal load resistance, so it is very important to determine the efficient and ideal location of shear walls. Calculation of earthquake loads and structural responses using the dynamic time history method is an accurate method for determining the behavior of structures due to actual earthquakes because the dynamic analysis also takes into account mass, stiffness, and damping. The Unimed FMIPA building is a 10-storey lecture building with a dual system structure system. In the FMIPA Unimed building there are six shear walls where four shear walls with a total length of 14.75 meters are placed on the x-axis, and two shear walls with a total of 4,525 meters are placed on the y-axis.

To determine the effect of the location of the shear walls on the deviations in the FMIPA Unimed building, the six shear walls in the FMIPA building will be changed into 2 models, then analyzed and seen the effect of building behavior due to changes in the location of the shearwall due to earthquake loads using the linear time history method.

From the results of the deviation analysis using time history earthquake analysis, it was found that the average floor drift for each model was as follows: Trinidad Earthquake (Existing Building X = 25.21 mm; Y=38.45 mm , Model 1 Building X = 30.22 mm; Y= 35.05 mm, Model 2 Building X= 24.61 mm; Y=35.58 mm), Manjil Earthquake, Iran (Existing Building X = 24.77 mm; Y=34.56 mm , Model 1 Building X = 27.27 mm; Y=31.42 mm, Model 2 Building X= 21.01 mm; Y=34.19 mm), Tottori Earthquake, Japan (Existing Building X = 27.03 mm; Y=38. 61 mm , Model 1 Building X = 26.98 mm; Y=34.95 mm, Model 2 Building X= 26.40 mm ;Y=32.56mm)

Keywords: Shear wall, linear time history, dual system