ABSTRAK

ANALISIS PENGARUH BEBAN GEMPA PADA GEDUNG TIGA LANTAI MENGGUNAKAN METODE STATIK EKUIVALEN

Oleh

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Tujuan penelitian ini adalah untuk mengevaluasi pengaruh beban gempa pada struktur gedung sekolah tiga lantai di daerah Lampung Barat. Pengaruh gempa yang ditinjau mencakup dimensi, tulangan, dan defleksi struktur dengan membandingkan terhadap gedung tanpa beban gempa.

Perhitungan beban gempa menggunakan metode Statik Ekuivalen dengan bantuan program SAP 2000. Program ini juga dapat menghasilkan gaya dalam berupa momen, lintang, dan normal (M, D, N). Pada perhitungan pelat dihitung dengan metode *direct design method (DDM).*

Hasil penelitian memperlihatkan bahwa perhitungan seluruh kebutuhan tulangan pada pelat, balok ,kolom, fondasi *bore pile, sloof* dan *pile cap* pada struktur dengan beban gempa 283,3267% lebih banyak dibandingkan dengan gedung tanpa beban gempa yang dlihat dari jumlah As tulangan pada masing-masing struktur. Perencanaan dimensi pada struktur tanpa beban gempa menghasilkan dimensi balok 250 x 450 mm, kolom 350 x 350 mm, fondasi *bore pile* diameter 70 cm, *sloof* 250 x 450 mm dan *pile cap* 1600 mm sedangkan dimensi struktur dengan beban gempa menghasilkan dimensi yang lebih besar dengan ukuran kolom 600 x 600 mm, fondasi *bore pile* diameter 80 cm, dan *pile cap* 1800 mm.

Kata kunci : beban gempa, statik ekuivalen, *direct design method*, SAP2000.

ABSTRACT

ANALYSIS THE EFFECT OF EARTHQUAKE LOAD ON THIRD FLOOR BUILDING BY USING STATIC EQUIVALENT METHOD

By

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The purpose of this study is to evaluate the effect of earthquake load on the structure of a third floor school building in West Lampung. The effects of earthquake is reviewed on the dimensions, reinforcement, and deflection of structures by comparing building without earthquake load.

The earthquake load calculation using Static Equivalent Method is helped by SAP 2000 program. This program can also produce internal force of the moment, latitude, and normal (M, D, N). The calculation of the slab is calculated by direct design method (DDM).

The results of this analysis showed that the calculation of all reinforcement requirements on slab, beams, columns, bore pile foundations, sloof and pile caps in the building with earthquake load 283,3267% is more than compared to the building without earthquake load seen from the number of as on each structure. Dimension design on the structure without earthquake load result that dimension of beams are 250 x 450 mm, coloumns are 350 x 350 mm, diameter of bore piles are 70 cm, sloofs are 250 x 450 mm and pile caps are 1600 mm while the dimensions of the structure with the earthquake load resulted in larger dimensions with dimension of columns are 600 x 600 mm, diameter of bore pile foundations are 80 cm, and pile caps are 1800 mm.

Keywords: earthquake load, static ekuivalen, direct design method, and SAP2000.