

ABSTRAK

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PERILAKU SIMPANGAN ANTAR LANTAI GEDUNG 17 LANTAI DENGAN METODE RESPON SPEKTRUM

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Indonesia termasuk Negara yang rawan terjadi gempa dalam pembangunan gedung bertingkat tinggi wajib hukumnya untuk menghitung gaya gempa yang terjadi pada struktur gedung. Tujuan penelitian tugas akhir ini penulis akan menghitung sebuah gedung 17 lantai dengan struktur dinding geser dengan respon spektrum, untuk mengetahui gaya geser gempa yang dihasilkan, mengetahui simpangan antar lantai akibat gaya gempa, dan untuk mengetahui ketidakberaturan horizontal dan vertikal struktur gedung tersebut. Perhitungan struktur apartemen mengacu pada SNI tentang gaya gempa dengan menggunakan software Etabs dalam menganalisa struktur gedung apartemen tersebut. Didapatkan hasil Pembebanan gedung apartemen 17 lantai dari podium lantai 1= 392,34Ton, podium lantai 2=2485,75Ton, podium lantai 3=2363,74Ton, podium lantai 4=2352,28Ton, lantai 5–16=1829,38 Ton, lantai 17=1278,54Ton, dan lantai atap =86,215Ton berat total gedung apartemen =30911,56Ton, Untuk hasil analisa perilaku struktur *shear wall* dengan respon spektrum dinyatakan aman, Dengan perbandingan gaya geser gempa akibat respon spektrum memperoleh nilai dinamik arah x=13784,963Kn dan dinamik arah y=13413,889Kn dengan statik arah x=15203,579Kn dan statik arah y= 15203,580K dinyatakan memenuhi. Untuk simpangan antar lantai akibat gaya gempa statik dan dinamik memenuhi batas ijin yang sudah diatur pada SNI. Dengan hasil ketidakberaturan horizontal maupun vertikal dinyatakan memenuhi sehingga struktur apartemen tidak terjadi collape.

Kata Kunci : Struktur gedung, beban gempa, respon spektrum, dinding geser.

ABSTRACT

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DIFFERENT BETWEEN THE 17 FLOOR BUILDING WITH SPECTRUM RESPONSE METHOD

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Indonesia is one of the countries prone to earthquakes in the construction of high-rise buildings, it is obligatory to calculate the earthquake force that occurs in the structure building. The purpose of this final project research the author will calculate a 17-storey building with a shear wall structure with a response spectrum, to determine the resulting earthquake shear force, to know the deviation between floors due to earthquake forces, and to determine the horizontal and vertical irregularity of the building structure. The calculation of the apartment structure refers to the SNI regarding earthquake forces using the Etabs software in analyzing the structure of the apartment building. The results obtained from the 17 floor apartment building from the first floor podium = 392.34 Ton, 2nd floor podium = 2485.75 Ton, 3rd floor podium = 2363.74 Ton, 4th floor podium = 2352,28Ton, 5-16 floors = 1829.38 Ton 17 = 1278,54Ton floor, and the floor of the total weight of the roof = 86,215Ton apartment building = 30911,56Ton, for the analysis results behavior of structure *shear wall* with spectral response declared safe, the ratio of shear force due to the earthquake response spectrum obtained a value of dynamic direction x = 13 784 , 963Kn and dynamic direction y = 13413,889Kn with static direction x = 15203,579Kn and static direction y = 15203,580K declared satisfactory. Deviation between floors due to static and dynamic earthquake forces meets the permit limits set out in SNI. With the results of horizontal and vertical irregularities it is stated that it is fulfilling so that the apartment structure does not occur collapsing.

Keywords : *Building structure, earthquake load, response spectrum, shear walls.*