EVALUASI KINERJA BANGUNAN GEDUNG FAKULTAS KEDOKTERAN UNIVERSITAS SWADAYA GUNUNG JATI DENGAN ANALISIS PUSHOVER MENGGUNAKAN PROGRAM SAP2000

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ABSTRAK

Indonesia merupakan salah satu negara yang mempunyai intensitas gempa tinggi, hal ini dikarenakan Indonesia berada pada pertemuan 3 lempeng tektonik yaitu lempeng Indo-Australia, lempeng Eurasia dan lempeng Pasifik. Selain itu beberapa wilayah Indonesia juga termasuk kedalam wilayah Ring of Fire, sehingga menyebabkan Indonesia memiliki intensitas terjadinya gempa bumi yang cukup tinggi. Perkembangan dari perencanaan maupun evaluasi bangunan tahan gempa saat ini adalah perencanaan berbasis kinerja atau yang dikenal dengan Performance Based Earthquake Engineering (PBEE) yang dapat digunakan untuk mendesain bangunan baru ataupun mengevaluasi bangunan yang sudah ada. Penelitian tugas akhir ini adalah mengevaluasi kinerja gedung Fakultas Kedokteran Universitas Swadaya Gunung Jati Cirebon dengan metode analisis pushover berdasarkan peraturan SNI 1726-2012, code Applied Technology Council (ATC-40) dan peraturan Federal Emergency Management (FEMA 356). Analisis struktur dilakukan menggunakan software SAP2000. Dari analisis gedung Fakultas Kedokteran Universitas Swadaya Gunung Jati ini didapatkan hasil berdasarkan FEMA 356 nilai target perpindahan arah x yaitu 0,12725 m dengan nilai drift actual 0,8837%. Sedangkan nilai target perpindahan arah y yaitu 0,152344 m dengan nilai drift actual 1,05%, sehingga bangunan ini termasuk pada level kinerja Immediate Occupancy (IO). Hasil berdasarkan ATC-40 didapatkan nilai maximum total drift push x ialah 0,005347 dan push y 0,00625. Sedangkan nilai maximum inelastic drift push x ialah 0,003468 dan push y 0,004305. Sehingga level kinerja bangunan ini dengan peraturan ATC-40 berada pada Immediate Occupancy (IO). Bangunan gedung tidak akan mengalami kerusakan struktural yang berat sehingga gedung dapat segera difungsikan kembali.

Kata kunci: *Gedung, Pushover, ATC, FEMA, SAP2000.*

PERFORMANCE EVALUATION OF BUILDING FACULTY OF MEDICINE UNIVERSITY OF GUNUNG JATI WITH PUSHOVER ANALYSIS USING SAP2000 PROGRAM

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ABSTRACT

Indonesia is one of the countries that has a high earthquake intensity, this is because Indonesia is located at the confluence of 3 tectonic plates, namely the Indo-Australian plate, the Eurasian plate and the Pacific plate. In addition, several regions of Indonesia are also included in the Ring of Fire area, causing Indonesia to have a fairly high intensity of earthquakes. The development of planning and evaluation of earthquake-resistant buildings today is performance-based planning or known as Performance Based Earthquake Engineering (PBEE) which can be used to design new buildings or evaluate existing buildings. This final project research is to evaluate the performance of the building of the Faculty of Medicine, Universitas Swadaya Gunung Jati Cirebon with pushover analysis method based on SNI 1726-2012 regulations, Applied Technology Council code (ATC-40) and Federal Emergency Management regulations (FEMA 356). Structural analysis was performed using SAP2000 software. From the analysis of the building of the Faculty of Medicine, Universitas Swadaya Gunung Jati, the results obtained are based on FEMA 356, the value of the x-direction displacement target is 0.12725 m with an actual drift value of 0.8837%. While the target value of the y-direction displacement is 0.152344 m with an actual drift value of 1.05%, so this building is included in the Immediate Occupancy (IO) performance level. The results based on ATC-40 obtained that the maximum total drift push x is 0.005347 and push y is 0.00625. While the maximum inelastic drift push x is 0.003468 and push y is 0.004305. So that the performance level of this building with the ATC-40 regulation is at Immediate Occupancy (IO). The building will not suffer heavy structural damage so that the building can be immediately re-used.

Keywords*: Building, Pushover, ATC, FEMA, SAP2000.*