ABSTRACT

ANALYSIS OF SHEARWALL LAYOUT VARIATIONS WITH SNI 1726 - 2019 ON THE BEHAVIOR OF MULTI-STOREY BUILDINGS (Case Study: One-Stop Public Service Building In Bandar Lampung)

By

ANDI SETIAWAN

Earthquake resistant buildings are not designed only by strengthening the resistance of the structure, but are also designed to reduce earthquake forces. One of the structural reinforcement elements that can reduce earthquake forces is shearwall. The variation of shearwall layout will have a different effect on the performance level of the structure. This study aims to determine the performance level of the structure with a variety of shearwall layouts in a building structure model using the pushover analysis method. Determination of structural performance level by pushover analysis is done using ETABS V19 software based on SNI 1726-2019, SNI 1727-2020, SNI 2847-2019, ATC-40 and FEMA 356/440. From the research results it was found that the structural performance level according to ATC-40 (1996), for model 1 and model 6 were included in the damage control category, while for model 2, model 3, model 4 and model 5 were included in the immediate occupancy category. Meanwhile, according to FEMA 440 (2005), for model 1, model 4 and model 6 fall into the life safety category, while for model 2, model 3 and model 5 fall into the immediate occupancy category. Placement of shearwall which has an optimum value according to ATC-40 and FEMA 440 for the X direction both occur in model 2. Meanwhile in the Y direction according to ATC-40 it occurs in model 3 and if according to FEMA 440, for the Y direction it occurs in model 5.

Keywords: shearwall, model, structure performance level, pushover analysis

ABSTRAK

ANALISIS VARIASI *LAYOUT SHEARWALL* DENGAN SNI 1726-2019 TERHADAP PERILAKU BANGUNAN BERTINGKAT (Studi Kasus: Gedung Pelayanan Publik Satu Atap Bandar Lampung)

Oleh

ANDI SETIAWAN

Bangunan tahan gempa tidak didesain hanya dengan memperkuat tahanan strukturnya, melainkan didesain untuk dapat mereduksi gaya gempa. Salah satu elemen perkuatan struktur yang mampu mereduksi gaya gempa adalah *shearwall.* Adanya variasi *layout shearwall* akan memiliki pengaruh berbeda terhadap level kinerja struktur. Penelitian ini bertujuan untuk mengetahui level kinerja struktur dengan variasi *layout shearwall* pada suatu model struktur bangunan dengan menggunakan metode analisis *pushover*. Penentuan level kinerja struktur dengan analisis *pushover* dikerjakan menggunakan *sofware* ETABS V19 yang berdasarkan SNI 1726-2019, SNI 1727–2020, SNI 2847–2019, ATC-40 dan FEMA 356/440. Dari hasil penelitian didapatkan bahwa level kinerja struktur menurut ATC-40 (1996), untuk model 1 dan model 6 masuk ke dalam kategori *damage control,* sedangkan untuk model 2, model 3, model 4 dan model 5 masuk ke dalam kategori *immediate occupancy*. Sedangkan menurut FEMA 440 (2005), untuk model 1, model 4 dan model 6 masuk ke dalam kategori *life safety,* sedangkan untuk model 2, model 3 dan model 5 masuk ke dalam kategori *immediate occupancy.* Penempatan *shearwall* yang memiliki nilai optimum menurut ATC-40 dan FEMA 440 untuk arah X sama-sama terjadi pada model 2. Sedangkan pada arah Y menurut ATC-40 terjadi pada model 3 dan jika menurut FEMA 440, untuk arah Y terjadi pada model 5.

Kata kunci: *shearwall*, model, level kinerja struktur, analisis *pushover*