# EVALUASI KINERJA STRUKTUR TERHADAP BEBAN GEMPA DENGAN METODE *PUSHOVER*

# (STUDI KASUS GEDUNG ESCAPE BUILDING KANTOR GUBERNUR SUMATERA BARAT)

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## ABSTRAK

Secara geografis Provinsi Sumatera Barat berada di pesisir barat pulau Sumatera yang merupakan daerah rawan gempa karena terletak di antara dua lempeng aktif dunia. Evaluasi kinerja struktur perlu dilakukan untuk mengetahui level kinerja struktur dan kapasitas struktur dalam menerima beban lateral gempa. Evaluasi kinerja dilakukan dengan metode *pushover* dengan membuat pemodelan tiga dimensi struktur kemudian dihitung menggunakan aplikasi *software*. Analisis dilakukan pada struktur gedung *escape building* kantor gubernur Sumatera Barat. Evaluasi struktur yang ditinjau adalah struktur gedung perkantoran dengan ketinggian total 16,2 meter yang berada di Kota Padang. Berdasarkan SNI 1726-2019, diperoleh kategori resiko gempa II, kondisi tanah lunak (SE), nilai respons percepatan gempa $S_{DS}$ = 0,774 dan $S_{D1}$ = 0,8 gaya geser dasar maksimum yang dapat diterima oleh struktur 30843,463 kN dengan *displacement* 324 mm. Pada titik kinerja struktur diperoleh gaya geser dasar 26199,623 kN dengan *displacement* 218,737 mm. sehingga, kinerja struktur yang ditinjau termasuk dalam level kinerja *Damage Control (DO)*

**Kata kunci : Evaluasi, Level kinerja, Struktur, Gempa**

# EVALUATION OF STRUCTURE PERFORMANCE AGAINTS SEISMIC LOAD WITH PUSHOVER METHOD

# (CASE STUDY ESCAPE BUILDING GOVENOR OFFICE, WEST SUMATERA)

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## ABSTRACT

Geographically West Sumatra Province is located on the west coast of Sumatera island which is an earthquake prone area because it is located between two active plates of the world. Evaluation of the performance of the structure needs to be carried out to determine the performance level of the structure and the capacity of the structure in receiving the lateral seismic load. Performance evaluation is performed by pushover method by creating a three-dimensional animation structure then calculated using software application. Analysis was carried out on the structure of the escape building of the West Sumatera governor office. The evaluation of the structure reviewed is the structure of an office building with a total height of 16.2 meters located in Padang City. Based on SNI 1726-2019, obtained category II earthquake risk, soft soil conditions (SE), seismic acceleration response value $S_{DS}$ = 0.774 and $S_{D1}$ = 0.8 maximum base shear force acceptable by structure 30843,463 kN with displacement of 324 mm. At performance point the structure obtained a base shear force of 26199,623 kN with a displacement of 218,737 mm. Thus, the level performance of the structure reviewed is Damage Control (DO)

**Key words : Evaluation, Performance point, Structure, Seismic**