

INTISARI

YOVE HERTANTO, 2022, *Analisis dan Evaluasi Kinerja Struktur Gedung Bertingkat Terhadap Beban Seismik Berdasar Acuan SNI 1726:2019 (Studi Kasus Hotel Bintaro Xchange Tahap II)*. (dibimbing oleh Teguh Sudiby, S.T., M.T., Ph.D.)

Hotel Bintaro Xchange dibangun di Bintaro, Tangerang Selatan pada tahun 2020 dengan standar acuan desain gedung SNI 1726:2012. Di Indonesia standar yang mengatur tentang beban gempa terhadap bangunan gedung dan non-gedung selalu diperbaharui secara berkala mengikuti perkembangan aktivitas gempa di Indonesia dan standar Internasional yang berlaku.

Tujuan dari penelitian ini adalah mengetahui perilaku dan kinerja struktur dalam merespons beban seismik sesuai dengan peraturan terbaru SNI 1726:2019. Analisis struktur menggunakan *software* ETABS v20 dengan metode linier dinamik respons spektrum. Evaluasi struktur dilakukan dengan meninjau kinerja struktur dalam merespons beban seismik.

Hasil analisis struktur eksisting menunjukkan terjadi dominan gerak translasi sebesar 53,2% arah X pada mode 1, dominan gerak translasi sebesar 41,1% arah Y pada mode 2, dan terjadi dominan gerak rotasi sebesar 35,1% pada mode 3. Rasio partisipasi massa sudah mencapai 100% pada mode ke 41. Berdasarkan acuan SNI 1726:2019, struktur memiliki ketidakberaturan horizontal torsi tipe 1A. Kemudian struktur juga memiliki ketidakberaturan vertikal tingkat lunak tipe 1A pada lantai 6. Pada kontrol gaya geser dasar, eksentrisitas, sistem ganda, dan simpangan antar tingkat, struktur menunjukkan hasil yang masih memenuhi persyaratan standar SNI 1726:2019.

Kata Kunci: Analisis Struktur, Evaluasi Struktur, Beban Seismik, SNI 1726:2019

ABSTRACT

YOVE HERTANTO, 2022, *Analysis and Evaluation of the Performance of High Building Structures to Seismic Loads Based on SNI 1726:2019 (Case Study of Bintaro Xchange Hotel Phase II)*. (Supervised by Teguh Sudiby, S.T., M.T., Ph.D.)

Bintaro Xchange Hotel was built in Bintaro, South Tangerang in 2020 with the reference standard of SNI 1726:2012 building design. In Indonesia, standards governing the earthquake load on buildings and non-buildings are always updated regularly following the development of earthquake activity in Indonesia and applicable international standards.

The purpose of this study is to determine the behavior and performance of structures in responding to seismic loads in accordance with the latest regulations of SNI 1726:2019. Structural analysis using ETABS v20 software with dynamic linear method of spectrum response. Evaluation of the structure is carried out by reviewing the performance of the structure in response to seismic loads.

The results of the analysis of the existing structure showed that there was a dominant translational motion of 53.2% of the X direction in mode 1, the dominant of translational motion of 41.1% in the Y direction in mode 2, and a dominant rotational motion of 35.1% in mode 3. The mass participation ratio has reached 100% in the 41st mode. Based on the reference SNI 1726:2019, the structure has a horizontal irregularity of type 1A torque. Then the structure also has a vertical irregularity of soft story type 1A on the 6th floor. In the control of basic shear forces, eccentricity, dual systems, and story drifts, the structure shows results that still meet the requirements of the SNI 1726:2019 standard.

Keywords: *Structure Analysis, Structure Evaluation, Seismic Load, SNI 1726:2019*