

Indonesia merupakan negara dengan tingkat kerawanan tinggi terhadap gempa bumi, sehingga fasilitas vital seperti rumah sakit harus dipastikan ketahanannya agar tetap dapat berfungsi dalam kondisi darurat. Penelitian ini difokuskan pada Gedung Pelayanan Rumah Sakit Pusat Otak Nasional (RS PON) yang termasuk kategori risiko IV menurut ASCE 7. Sebagai rumah sakit rujukan nasional dengan peran esensial dalam pelayanan medis, RS PON dituntut memiliki struktur yang andal terhadap gempa bumi. Oleh karena itu, penelitian ini bertujuan untuk mengevaluasi kinerja struktural gedung agar dapat dipastikan mampu berfungsi pascagempa.

Pemodelan struktur gedung ini dilakukan dengan bantuan perangkat lunak CSI ETABS dengan data sekunder berupa gambar Detailed Engineering Design (DED). Selanjutnya, evaluasi kinerja struktur bangunan dilakukan menggunakan standar ASCE 41-23 dengan 2 tahap, yaitu Tier 1 (*Screening*) yang terdiri dari *Quick Checks* dan *Checklist*, serta Tier 2 (*Deficiency-Based Evaluation*) dengan tingkat kinerja *Immediate Occupancy* pada tingkat bahaya seismik BSE-1E atau gempa kala ulang 225 tahun serta tingkat kinerja *Life Safety* pada tingkat bahaya seismik BSE-2E atau gempa dengan kala ulang 975 tahun.

Berdasarkan evaluasi Tier 1, pada tahap *Quick Checks* didapatkan parameter *story drift for moment frames* dan *shear stress in concrete frame columns* tidak memenuhi persyaratan. Pada tahap *Checklist* didapatkan parameter *liquefaction*, *slope failure*, *interfering walls*, *column shear stress check*, *column-bar splices*, *joint eccentricity*, *deflection compatibility*, *plan irregularities*, dan *stirrup spacing* tidak memenuhi persyaratan. Oleh karena itu proses evaluasi dilanjutkan ke tahap Tier 2. Berdasarkan evaluasi Tier 2, didapatkan pada seluruh komponen balok dan kolom telah memenuhi persyaratan untuk tingkat kinerja *Immediate Occupancy* dan *Life Safety*. Dengan demikian, dapat disimpulkan bahwa komponen struktural Gedung Pelayanan Rumah Sakit Pusat Otak Nasional memiliki kapasitas yang memadai untuk tetap berfungsi pascagempa.

Kata kunci: ASCE 41-23, Evaluasi, *Immediate Occupancy*, *Life Safety*, Rumah Sakit

Indonesia is a country with a high level of seismic hazard, which makes it crucial to ensure the resilience of essential facilities such as hospitals so that they remain operational during emergencies. This study focuses on the Service Building of the National Brain Center Hospital (RS PON), which is classified as a Risk Category IV building according to ASCE 7 provision. As a national referral hospital with an essential role in medical services, RS PON is required to have a reliable structural performance against earthquakes. Therefore, this research aims to evaluate the structural performance of the building to ensure its ability to remain functional after an earthquake.

The structural modeling of this building was conducted using CSI ETABS software with secondary data obtained from the Detailed Engineering Design (DED) drawings. Furthermore, the structural performance evaluation of the building was conducted using ASCE 41-23 standards in two stages: Tier 1 (Screening), which includes Quick Checks and a Checklist, and Tier 2 (Deficiency-Based Evaluation) with an Immediate Occupancy performance level at seismic hazard level BSE-1E or a 225-year return period earthquake and Life Safety Performance Level at seismic hazard level BSE-2E or 975-year return period earthquake.

Based on the Tier 1 evaluation, the Quick Checks indicated that the parameters for story drift in moment frames and shear stress in concrete frame columns did not meet the requirements. In the Checklist stage, the parameters for liquefaction, slope failure, interfering walls, column shear stress check, column-bar splices, joint eccentricity, deflection compatibility, plan irregularities, and stirrup spacing also failed to meet the criteria. Consequently, the evaluation proceeded to Tier 2. The Tier 2 assessment revealed that all of beam and column components satisfy the requirements of both Immediate Occupancy and Life Safety performance level. Thus, it can be concluded that the structural components of the National Brain Center Hospital Service Building have adequate capacity to remain functional after an earthquake.

Keywords: *ASCE 41-23, Evaluation, Hospital, Immediate Occupancy, Life Safety*