ABSTRAK

Nerisa M Simamora, NIM:5203250001, ANALISIS STRUKTUR GEDUNG CITRAPLAZA NAGOYA BATAM BERDASARKAN SNI 1726:2019 DAN SNI 2847:2019, ***Skripsi, Jurusan Pendidikan Teknik Bangunan, Program Studi S1 Teknik Sipil, Fakultas Teknik, Universitas Negeri Medan Tahun 2026.***

Pemberlakuan SNI 1726:2019 dan SNI 2847:2019 membawa perubahan signifikan pada persyaratan perencanaan struktur tahan gempa di Indonesia. Gedung CitraPlaza Nagoya Batam yang eksisting dirancang berdasarkan standar yang berlaku pada masanya perlu dianalisis kesesuaiannya terhadap standar terbaru. Penelitian ini bertujuan untuk menentukan dimensi penampang balok dan kolom, menentukan kebutuhan luas tulangan longitudinal dan transversal pada balok dan kolom, serta membandingkan hasil analisis struktur dengan desain eksisting berdasarkan SNI 1726:2019 dan SNI 2847:2019. Metode yang digunakan adalah analisis kuantitatif dengan pemodelan tiga dimensi pada ETABS, analisis kapasitas menggunakan CSiCol, dan perhitungan penulangan manual sesuai SNI 2847:2019. Hasil penelitian menunjukkan bahwa berdasarkan parameter SNI 1726:2019, Gedung CitraPlaza termasuk dalam Kategori Desain Seismik D (KDS D) yang mewajibkan penerapan Sistem Rangka Pemikul Momen Khusus (SRPMK). Dimensi kolom yang memenuhi persyaratan SRPMK berkisar antara 500×1100 mm hingga 800×1700 mm, sedangkan dimensi balok berkisar antara 400×750 mm hingga 550×800 mm. Kebutuhan tulangan longitudinal balok menggunakan D22 dengan luas berkisar antara 1.140 mm² hingga 3.041 mm² per zona, dan tulangan transversal berupa sengkang D13 dengan spasi 100 mm di tumpuan dan 150 mm di lapangan. Kebutuhan tulangan longitudinal kolom menggunakan D28 dengan luas antara 7.389 mm² hingga 19.302 mm² dan rasio tulangan 1,31%–1,77%, serta sengkang pengekang D16 dengan spasi 50–100 mm di zona sendi plastis. Perbandingan dengan desain eksisting menunjukkan bahwa dimensi kolom perlu diperbesar pada seluruh tipe (10–60% pada sisi terpendek), luas tulangan longitudinal kolom meningkat antara 20,0% hingga 71,8%, dan tulangan longitudinal balok meningkat antara 0,9% hingga 21,4%. Desain eksisting tidak sepenuhnya memenuhi persyaratan daktilitas dan *detailing* SNI 2847:2019 untuk KDS D, sehingga diperlukan evaluasi dan mitigasi lebih lanjut.

Kata Kunci: Analisis struktur, SNI 2847:2019, SRPMK, Sistem Ganda, *Strong Column-Weak Beam*, *detailing* tulangan.

ABSTRACT

Nerisa M Simamora, NIM: 5203250001, Analysis of Reinforcement of Citraplaza Nagoya Batam Building Based on SNI 2019, **Thesis, Department of Building Engineering Education, Bachelor's Program in Civil Engineering, Faculty of Engineering, State University of Medan, 2026.**

The implementation of SNI 1726:2019 and SNI 2847:2019 has brought significant changes to the seismic design requirements for structures in Indonesia. The existing CitraPlaza Nagoya Batam building, designed in accordance with the standards applicable at the time of its construction, requires analysis of its conformity to the latest standards. This study aims to determine the cross-sectional dimensions of beams and columns, determine the required longitudinal and transverse reinforcement in beams and columns, and compare the structural analysis results with the existing design based on SNI 1726:2019 and SNI 2847:2019. The method employed was quantitative analysis using three-dimensional ETABS modeling, capacity analysis with CSiCol, and manual reinforcement calculation in accordance with SNI 2847:2019. The results revealed that based on the SNI 1726:2019 parameters, the CitraPlaza Building is classified under Seismic Design Category D (KDS D), which mandates the use of a Special Moment-Resisting Frame System (SRPMK). The column dimensions meeting SRPMK requirements range from 500×1100 mm to 800×1700 mm, while beam dimensions range from 400×750 mm to 550×800 mm. The required longitudinal reinforcement in beams uses D22 bars with areas ranging from 1,140 mm² to 3,041 mm² per zone, and transverse reinforcement consists of D13 stirrups at 100 mm spacing at supports and 150 mm at midspan. Column longitudinal reinforcement uses D28 bars with areas between 7,389 mm² and 19,302 mm² and reinforcement ratios of 1.31%–1.77%, with D16 confinement stirrups at 50–100 mm spacing in the plastic hinge zone. A comparison with the existing design indicates that column dimensions need to be enlarged for all types (10–60% on the shorter side), longitudinal column reinforcement increases between 20.0% and 71.8%, and longitudinal beam reinforcement increases between 0.9% and 21.4%. The existing design does not fully comply with the ductility and detailing requirements of SNI 2847:2019 for Seismic Design Category D, necessitating further evaluation and mitigation.

Keywords: Structural analysis, SNI 2847:2019, SRPMK, Dual System, Strong Column-Weak Beam, reinforcement detailing.