PERENCANAAN ULANG STRUKTUR ATAS GEDUNG KANTOR ASTRA CREDIT COMPANIES DIGITAL CENTER YOGYAKARTA MENGGUNAKAN BAJA KONVENSIONAL

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ABSTRAK

Struktur baja semakin banyak diminati dan sering digunakan, karena baja merupakan salah satu alternatif material untuk digunakan sebagai bahan konstruksi. Struktur baja sendiri memiliki keunggulan bila dibandingkan dengan beton bertulang, di antaranya adalah struktur baja memiliki kuat tarik yang tinggi, waktu pelaksanaan dan mutu bisa lebih terkendali. Penelitian ini bertujuan untuk mengetahui dimensi profil baja pada kolom dan balok, sambungan, dan simpangan Gedung Kantor Astra Credit Companies Digital Center Yogyakarta. Metode penelitian yang digunakan ialah perancangan ulang struktur atas Gedung Kantor Astra Credit Companies Digital Center Yogyakarta menggunakan baja konvensional berdasarkan Standar Nasional Indonesia. Pemodelan struktur menggunakan *software* SAP.2000 v.14.0. yang mengacu pada SNI 1729-2015 dan SNI 7860-2020. Perhitungan struktur meliputi beban hidup, beban mati, dan beban gempa mengikuti peraturan SNI 1727-2020 dan untuk desain struktur mengacu pada SNI 1729-2015. Sedangkan pengecekan pada simpangan antar lantai, drift ratio dan gaya geser mengacu pada SNI 1726-2019. Berdasarkan hasil analisis dan perencanaan ulang menunjukkan bahwa struktur baja Gedung Kantor Astra Credit Companies Digital Center Yogyakarta memenuhi konsep SCWB (Strong Column Weak Beam). Diperoleh profil yang digunakan pada komponen balok sebanyak 4 jenis yaitu balok B1 (IWF 500.300.11.18), B2 (IWF 500.300.11.15), B3 (IWF 350.350.12.19), B4 (IWF 300.300.10.15) serta komponen kolom sebanyak 2 jenis yaitu kolom K1 (IWF 400.400.30.50), K2 (IWF 400.400.20.35) yang mempunyai jenis penampang kompak dan memenuhi syarat rasio momen dan geser, kontrol lentur dan geser, yang sesuai dengan persyaratan.

Kata Kunci : Baja Konvensional, Perencanaan Ulang, Sambungan, Simpangan.

PSTRUCTURAL REDESIGN OF ASTRA CREDIT COMPANIES DIGITAL CENTER YOGYAKARTA OFFICE BUILDING USING CONVENTIONAL STEEL

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ABSTRACT

Steel structures are increasingly in demand and are often used, because steel is one of the alternative materials to be used as construction materials. The steel structure itself has advantages when compared to reinforced concrete, including the steel structure has a high tensile strength, execution time and quality can be more controlled. This study aims to determine the dimensions of steel profiles on columns and beams, connections, and deviations of the Astra Credit Companies Digital Center Yogyakarta Office Building. The research method used is the redesign of the upper structure of the Astra Credit Companies Digital Center Yogyakarta Office Building using conventional steel based on the Indonesian National Standard. Structural modeling using SAP.2000 v.14.0 software. which refers to SNI 1729-2015 and SNI 7860-2020. Structural calculations include live loads, dead loads, and earthquake loads according to SNI 1727-2020 regulations and for structural design refer to SNI 1729-2015. While checking the deviation between floors, drift ratio and shear force refers to SNI 1726-2019. Based on the results of the analysis and re-planning, it shows that the steel structure of the Astra Credit Companies Digital Center Yogyakarta Office Building meets the SCWB (Strong Column Weak Beam) concept. The profiles used for beam components are 4 types, namely beam B1 (IWF 500.300.11.18), B2 (IWF 500.300.11.15), B3 (IWF 350.350.12.19), B4 (IWF 300.300.10.15) and column components as much as 2 types, namely column K1 (IWF 400.400.30.50), K2 (IWF 400.400.20.35) which has a compact cross-section type and fulfills the requirements of the moment and shear ratio, bending and shear control, which is in accordance with the requirements.

Keywords: Conventional Steel, Redesign, Connection, Deviation.