

ABSTRACT

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Planning a building structure, it must meet the criteria, among others, meet the requirements of strength, rigidity, safety against earthquakes, building functions, beauty, and cost consideration. In this final project, the main structural material used in this building is steel, writer uses steel material in this planning is because the steel material has several advantages, high strength, its elastic strength is excellent, and high ductility. Hotel building planning is carried out using a Special Concentric Braced Frame System (SRBKK), the braced type used is type X and modeling of this building using the help of the ETABS 2016. The results of the ETABS modeling from the planning of this building meet the requirements for the structural deviation between floors, structure building stable, because earthquake resistant building structures must pay attention to several structural planning criteria, meeting the requirements of strength, rigidity, and ductility, and this planning is in accordance with terms and rules of SNI 1726 – 2019. This building is located in South Jakarta with a building height of 40 m and a total of 10 floors. The type of soil in the planning of this building is soft soil (SE). the quality of steel used in this planning is BJ 41 and for the concrete used is K 350. The floor plate uses a 0,8 mm floordeck. The column structure is obtained using steel profiles with dimensions WF 400×400×20×35, main beam profiles with dimensions WF 500×200×10×16 and WF 400×200×8×13, sub-beam profiles with dimensions WF 400×200×8×13, and braced profiles with dimensions WF 350×250×8×12. The connection used for this planning has 2 types of connections, bolted joints with A325 quality and welding joints using E70XX, the diameter use is diameter 16 mm and diameter 20 mm, and the welded joints thickness of 12 mm. The foundation used in the planning of this building has a total of 50 piles with a diameter Of 0,5 m with a variety of piles, that is 1 and 2 piles. The budget plan of costs in the planning of this building with a total of 10 floors is Rp 26.733.969.107,00.

Keywords: Steel, SRBKK, X type, Floordeck, ETABS