

ABSTRACT

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The Dual System is a combination of a moment-resisting frame and shear walls, used for its ability to withstand seismic forces. The objectives of this study are to achieve an earthquake-resistant structural design based on SNI 1726:2019, to determine reinforced concrete structural elements such as columns, beams, floor slabs, and shear walls according to SNI 2847:2019, to determine the quantity and dimensions of foundation piles, and to prepare a cost estimate based on PUPR No. 8 of 2023. The structural design pertains to a 14-story office building located in Depok, West Java, classified under Risk Category II and Design Category D. In the dual system calculations, the structure meets the requirement of withstanding 25% of the seismic load. The design details include a floor slab thickness of 130 mm and a roof slab thickness of 120 mm, beam dimensions of 400x650 mm and 350x450 mm, column dimensions of 750x750 mm and 700x700 mm, and a structural wall thickness of 300 mm. For the foundation, bored piles with a diameter of 750 mm are used, totaling 97 piles. The cost estimate (RAB), derived from unit price analysis (AHSP) and the volume of work, amounts to Rp 47,756,506,532.

Keywords: Reinforced Concrete Structure, Dual System, Cost Estimate