ABSTRACT

COMPARATIVE STUDY OF THE DESIGN PILE CAP REINFORCED CONCRETE CONVENTIONAL METHOD AND STRUT AND TIE MODEL

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Pile cap used to reduce failure sliding often is for did not experience collapse on the foundation. Pile cap planning used two methods, conventional method and strut and tie method based on SNI 2847-2013 the pile cap used the 4 models is 2 piles, 3 piles, 4 piles, and 5 piles. Strut and tie models were analyzed by the Program SAP 2000 version 20, the truss model helps to understand how forces are transferred throughout a structural member.The purpose of this thesis is to analyze the correlation among reinforcing volume to the pile cap. The results of analysis that the volume of steel with conventional method and strut and tie model is different. The pile cap 2 piles the steel weight in the conventional method is 177,960 kg dan strut and tie model is 355,895 kg with a ratio of 99,99%.The pile cap 3 piles the steel weight in the conventional method is 432,165 kg dan strut and tie model is 648,229 kg with a ratio of 50%. The pile cap 4 piles the steel weight in the conventional method is 432,165 kg dan strut and tie model is 355,907 kg with a ratio of -17,65%. The pile cap 5 piles the steel weight in the conventional method is 521,141 kg dan strut and tie model is 991,397 kg with a ratio of 90,24%.The result of the analysis that the steel weight with 2 piles, 3 piles, and 5 piles of conventional methods more efficient.

Keywords: *Foundation, Pile Cap, Strut and Tie Model*

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