

Chotepong Chantaranimi 2010: Comparative Study of Construction Cost Between Load Bearing Wall System and Beam-column System. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Associate Professor Santi Chinanuwatwong, Ph.D. 130 pages.

Main factors that affect construction cost are material costs, labor costs and duration. Each construction method and structural system has an impact on construction costs and duration. Hence, choosing a suitable construction method and structural system for housing projects which have variation in size and characteristics are important. This research compares construction cost and duration of cast in place and cast insitu of beam-column and load bearing wall system. The study employed house's drawings from the Department of Public Works and Town and Country Planning, Ministry of Interior, Thailand. The drawings include 28 types of houses. In addition, to design the structure of these houses, each structural system was designed by using working stress design method base on the Engineering Institute of Thailand standard (EIT). Cost estimation for each type of house was performed. Material costs were from Bureau of Trade and Economic, Ministry of Commerce, Thailand, labor costs referred to the guideline and procedure for preparation of bidding of The Comptroller General's Department of Thailand (CGD). Construction duration estimated from production rate by collecting data from real construction projects.

The result shows that, for houses larger than 250 sq.m., precast concrete load bearing wall yields least construction costs, followed by precast concrete beam-column, cast insitu concrete load bearing wall and cast insitu concrete beam-column system, respectively. The reason is that precast concrete has less cost than cast insitu concrete and masonry cost has less cost than concrete wall. For houses 125 to 250 sq.m., precast concrete wall yields least duration, followed by precast beam-column, cast in place concrete load bearing wall and cast insitu concrete beam-column system, respectively. The reason is that precast concrete has requires less time than cast insitu concrete and concrete wall requires less time than masonry wall.

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Student's signature

Thesis Advisor's signature