## Abstract

The thesis entitled "Design and Construction Guidelines to Reduce Project Costs for Moderate Detached Houses" comprises of four objectives: firstly, study of design efficiency based on household socioeconomic in conjunction with human behaviors of the moderate income groups; secondly, comparative study of design efficiency and cost optimization via various construction techniques; thirdly, the investigation of construction material standard for moderate detached houses; and finally, proposed design and management guidelines for moderate detached-housing projects.

This is a survey research and its method composes with the literature reviews of architectural design concept; and a field survey, by interviewing and questionnaires, of 5 projects in the Northern part of Bangkok (Rangsit area).

The findings provide a framework for cost optimization of moderate detached houses, which brings together two guidelines. Firstly, living lifestyles need to be considered as of the following issues: 1) a functional need; 2) Empty room without space partitioning; 3) preference of fixed furniture lay-out; 4) window/opening as necessary, or related to furniture lay-out; 5) flexible uses of living space; and 6) preference of Thai-style kitchen. Secondly, construction techniques, and material usages should follow the following guidelines: 1) pre-cast beam, and column are the most appropriate; 2) low cost material with cheaper price material is more acceptable; 3) future expansion needs to be planned in advance.

Design guidelines entailing to the design for cost optimization process are listed as follows: firstly, design management: using a modular co-ordination system, avoiding complex design, etc.; secondly, construction management: selecting the suitable length of foundation pile, distributing foundation pile, and stud beams with steel structure for roofing with steel structure, etc.; and finally, site management: rolling land site only in a special area such as a main project route, selecting a suitable land slide wall, controlling the timing to relate a marketing plan, etc.

Guidelines for construction material management are listed as follows: firstly, there should be a value engineering method; secondly, lead-times for procurement is needed to be concerned; thirdly, site for warehouse is required; and finally, developers and suppliers must collaborate in research and develop new materials for cost optimization.