

Abstract

The feasibility of substitute material for natural wood and the increasing awareness of the wood shortage call for the research concerning innovative development of substitute materials for traditional Thai house in real estate business. This research aims to explore and summarize the definition of new traditional middle region Thai house as well as to assess and evaluate the qualification of wooden material substitutes for new traditional Thai house in terms of both structural and architectural components. The research results are expected to contribute to the knowledge on the application of substitute material in new traditional middle region Thai house and to business development.

This study employs quantitative research methodology. The data collection were conducted using interview and structured questionnaire. The reliability of the research instrument is ensured through internal consistency analysis by the expertise. There are 12 participants in total from four related groups, which are mainly business owners, professionals, Thai architecture academics, and Thai house residents, drawn by using theoretical sampling technique. The data collected were analyzed using content analysis and descriptive statistic techniques such as frequency count and percentage.

The results reveal the meaning of new traditional Thai house as the traditional Thai house, which can apply substitute materials adapted from timber powder mixed with cement or plastic and binding agent for the three structural members and eight architectural components. The substitute materials should reduce both structural and construction cost. In addition, the substitute should be able to imitate physical and functional qualifications of natural wood. There are 10 required qualities, which are not shrink, not twist/ bend, inflammable, not deteriorate, not damaged by termites and resistance to attack, sunlight, water (rain), heat and humidity. These substitute materials are the inorganic bonded products of artificial wood that are applicable to three structural members and eight architectural components. Furthermore, the results of this study show that cost reduction and business feasibility can be achieved by applying 53-85% substitute materials in imitated construction of new traditional Thai house.