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# Malaysian Prefabricated Housing; The Real Causes of Fragmentation Issues and Steps to Overcome

Ahmad Bin Abd Jalil<sup>1</sup>, Fadhilah Binti Md Fazil<sup>2</sup>, Chong Wan Siang<sup>3</sup>, Mohd Amir Shazwan Bin Hashim<sup>4</sup>

<sup>1,3</sup> Universiti Malaysia Sarawak, Kota Samarahan, Malaysia

<sup>2</sup> Faculty of Law, Universiti Teknologi Mara (UiTM)

<sup>4</sup> Faculty of Engineering and Quantity Surveying, INTI International University.

E-mail: [ajahmad@unimas.my](mailto:ajahmad@unimas.my), [fadhilahfazil@uitm.edu.my](mailto:fadhilahfazil@uitm.edu.my), [wschong@unimas.my](mailto:wschong@unimas.my), [amirshazwan.hashim@newinti.edu.my](mailto:amirshazwan.hashim@newinti.edu.my)

**Abstract.** Many prefabricated housing projects in develop countries have proven their success, and since 1960s Malaysia has taken great steps towards applying this concept. Housing is suitable for prefabricated due to its repetitious of design, simultaneous construction, large scale and impact to environment. Unlike develop countries that far advanced, Malaysia still face critical issues including on fragmentation. Fragmentation is defined as working in isolation, work in separation and division that happens among different parties in the same project. Various research on prefabricated housing has been conducted focusing on supply chain, modularization, automation, design, payment and procurement but lack focus on fragmentation. This paper will investigate the real causes of fragmentation issues in Malaysian prefabricated housing, their consequences and suggest steps to overcome. The methodology used is mix method with 118 questionnaires were analyzed using SPSS and combine with deep interviews with respondents from prefabricated manufacturers, prefabricated installers, academicians, consultants, developers, main contractors and M&E contractors, through targeted sampling technique. The result shows the causes of fragmentation are unfamiliar with prefabricated concept, late involvement of prefabricated companies and the practice of segregation culture while the steps to overcome are by establishing close integration since beginning, each party is appointed early and direct contract between prefabricated companies and developers. This research has contributed to the body of knowledge by detailing the real causes that make fragmentation issue become critical and suggest steps to overcome them and both had been verified by respondents who are expert, experienced and represent all the stakeholders involved in prefabricated housing.

**Keywords:** Prefabricated housing, architectural, procurement, supply chain, modular construction, Malaysian housing projects.

## 1. Introduction

After world war 2, many countries incapable to provide sufficient homes and they scrambled to build enough homes to accommodate the increasing number of population and flock of urbanization (Din et al., 2012, Hampson & Brandon, 2004). One of the best strategy to tackle this problem was by implementing prefabricated housing where the on-site construction that erect raw materials, is now replaced with prefabricated components, that build in factory. This means the construction for housing have been simplified where most activities are no longer on-site but have shifted to factory and required manufacturing style with prefabricated design, automation, strict process, components transportation with proper handling and precise installation at site. (Ismail & Marhani, 2013).

The prefabricated concept is most suitable for housing because of housing nature that uses repetitive

