



# Construction Industry Experience of Industrialised Building System in Malaysia

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## Abstract

Government of Malaysia has done various efforts to promote the usage of Industrialised Building System (IBS) as an efficient and effective construction system compare to conventional building system. This paper reviews the experiences of Malaysian construction industry in the adoption of IBS from the first level of establishment until its development. This research select IBS as a construction technique in which components are manufactured in a controlled environment (on or off site), transported, positioned and assembled into a structure with minimal additional site works. IBS have been categorised to: precast concrete framing, steel formwork system, steel framing systems, block work system and prefabricated timber framing system. A comprehensive review from various sources conducted to define and classified IBS in this paper. The findings of this research illustrated the timeline of IBS establishment and development in Malaysia.

**Keywords:** Malaysia, IBS Roadmap, Effective Construction System, Industrialised Building System, Precast Concrete Framing.

## 1. INTRODUCTION

Industrialised Building System (IBS) can be viewed as a system, method of development, process, product, approach, technique or industrial philosophy. Government of Malaysia has done a lot of effort to promote the usage of Industrialised Building System (IBS) as an alternative construction method. Since the first project of IBS in year 1966, there has not been one absolute definition on Industrialised Building System (IBS) that could describe the entire building construction system. However, there are several definitions by researchers who studied into building construction emphasizing on the concept on off-site construction (OSC) [1], off-site production (OSP) [2, 3 and 4], industrialized and automated construction [5], off-site manufacturing (OSM), prefabricated building, pre-assembled building and pre-assembly [6]. Furthermore, IBS could be more elaborated by other definitions such as pre-cast building, pre-cast construction, non-traditional building, industrialised building, modularization, innovative building solutions and a Modern Method of Construction (MMC) [7 and 8]. However, regardless of all these definitions and ideas on IBS, to enhance the productivity, efficiency and effectiveness of IBS construction projects, the main strategy and significant effort is to move most of the activities from construction site to a more controlled environment in manufacturing site (desirably off site).

Industrialised Building System (IBS) is not a new approach to the construction industry because it has just again become feasible and visible in Malaysia as a valuable solution to improve the construction industry mainly in terms of efficiency, productivity and effectiveness. In a larger view and open minded perception, IBS is further than implementing the construction project through prefabricated methods. IBS is about the changing of conventional mindset, enhancing the capability, competency and value of human capital, developing better cooperation, team working and trust among the parties in construction industry, promoting intelligibility, innovation, transparency and most significantly the high integrity that will eventually enhance the productivity and efficiency within the construction industry [9]. Moreover, IBS has been identified as a potential method to improve overall construction performance in Malaysia in terms of quality, cost effectiveness, safety and health, waste reduction, efficiency and productivity. IBS can be an approach or process implemented within the construction industry resulting in less labor-oriented, faster, satisfying the quality concern, changing of conventional mindset, reengineering of human capital development, developing better cooperation and trust, promoting transparency and integrity [10].

There are many benefits of Industrialised Building System (IBS) as a modern method of construction such as reduction in construction time, less site materials, better site management, minimal wastage, cleaner