

COST and CONTRACT ADMINISTRATION in CONSTRUCTION

Divine Perspectives

Edited by
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Chapter 4

Cost Effectiveness of Structural Steelwork for Terrace House in Malaysia

Yahaya Mohd Yunus

Introduction

As in Tenth Malaysia Plan provided by Economic Planning Unit, it was reported that the Government would construct 78,000 affordable houses in sufficient amount during this period and improve the legal aspect of houses construction as to ensure its quality (p. 45). It acts as continuity from the Eight Malaysia Plan which aimed to provide the people with all income to have their own good quality and affordable houses (p. 501). Therefore, it shows that houses construction activities have been in great and effective demand due to increment of Malaysia's population and in providing sufficient and affordable houses to all income groups. However, Agus (1997) argued that "the conventional construction method, due to slow pace of construction and high cost, was not able to meet housing demands" (as cited by Kuang and Kiong, 2009, p. 5). This point is supported by Lip Kim (2011) in her write up where the prices of the houses have been increasing due to the high cost of material.

Presently, there are several alternatives available for building frame construction and one of it is by using structural steelwork. Structural steelwork has been used in Malaysia for quite a long time but the usage is limited to the construction of factory and high-rise building. In 1982, structural steelwork has been used for the construction of a high rise building in Malaysia and the building is known as Dayabumi Complex which is a 35-storey building. This is the first multi-storey building in

Malaysia whose structure is totally made of steel. After that another building called Menara Promet, a 30 storey building in Kuala Lumpur was also built totally of steel structure (in 1984) followed by the Matrade Building (1990's) and also Kuala Lumpur City Centre (KLCC), where large amount of steel structure had been used in the construction. Based on the report of KLCC construction, "other technical highlights on its core structure: each tower required approx. 11,000 tons of reinforcement, 2,825,120 sq. /ft. of very high-strength concrete and roughly 7,500 tons of structural steel beams and trusses" (Leefoo, 2001, para. 7). However, the usage of structural steelwork has not expanded into the construction of houses, especially terrace houses, although it promises greater benefit to the construction industry compared to conventional method of constructing framing structure. This is supported by Hassan K. Al Nageim and MacGinley (2005) where the application of structural steel as framing of a building provides benefit in terms of strength and the (short) duration to assemble it.

The Construction Industry Development Board (CIDB) of Malaysia produced an Industrialized Building System (IBS) Roadmap 2003-2010 which promotes Industrialized Building System (IBS). It concerns with the "construction process that utilises techniques, products, components, or building systems which involve prefabricated components and on-site installation" and it has been recognized that one of the five main groups of IBS is steel framing system (CIDB, 2008, p.7).

The objective of the study is to review the cost effectiveness of steelwork structural for terrace house construction in Malaysia.

Use of Steel for Buildings in General and Houses in Particular

Surah Al Hadid verse 25:

We sent aforetime Our Messengers with Clear Signs and sent down with them the Book and the Balance (of Right and Wrong), that men may stand forth in justice; and We sent down Iron, in which is (material for) mighty war, as well as may benefits for mankind, that Allah may test who it is that will help, unseen, Him and his