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BORANG PENGESAHAN STATUS TESIS***JUDUL : THE STRATEGY OF IMPLEMENTING EUROCODE 2SESI PENGAJIAN : 2006 / 2007Saya NG MING KWONG

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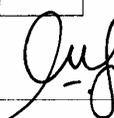
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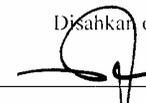
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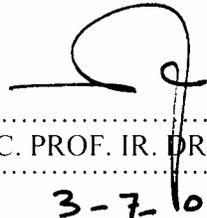
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THE STRATEGY OF IMPLEMENTING EUROCODE 2 IN MALAYSIA

NG MING KWONG

A project report submitted in fulfilment
of the requirements for the award of the degree of
Master of Science (Construction Management)

Faculty of Civil Engineering
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JULY 2007

I declare that this project report entitled "*The Strategy of Implementing Eurocode 2 in Malaysia*" is the result of my own research
except as cited in the references.

The project report has not been accepted for any degree and
is not concurrently submitted in candidature of any other degree.

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Dedicated to Jesus Christ,
My personal Lord and Savior,
And
To my beloved parents and family.

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ABSTRACT

Code of practice is a document that is written to help engineers in designing. In Malaysia, the British Standard (BS) is the main source of structural design code. Start from 2010, BS 8110, the design code for the structural use of concrete, will be withdrawn to give way for the full implementation of Eurocodes in the United Kingdom (UK). Following the move, since 2001 The Institution of Engineers Malaysia (IEM) has issued Position Paper on Concrete Codes of Practice in Local Construction Industry After 2008. This position paper recommended Malaysia to adopt Eurocode 2 after year 2008. These changes have wide implication towards Malaysia construction industry especially on structural design of concrete but there are limited actions taken to prepare for the transition in this country. The study is carried out with the aim of identifying the strategy of implementing Eurocode 2. The method that are used this study are through literature reviews, questionnaire surveys and performing structured interview. Based on the finding, majorities of the construction professionals are aware of the impending changes of BS 8110 to Eurocode 2. However more efforts have to be taken to prepare themselves toward the challenges ahead. Seven strategies have also been identified for successful implementation of Eurocode 2 in Malaysia. These strategies cover various aspects such as the acceptance of Eurocode 2 by the authority, awareness campaign, allowance of transition period, education and training, research and development, funding and determine the leader in implementing Eurocode 2.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

In the construction industry, code of practice is a document that is written to help engineer in design and as technical references. Besides, code of practice also contains administrative requirements such as requirement for approvals, inspection, documentation and quality control (Becht, 2004). In general, most countries have its own national code of practice; either produced through the experts in the country or through adoption of design codes from other countries.

In Malaysia, the construction practices rely very much on the British Standard (BS). The use of BS 8110, a design code for concrete structures is very common among the engineers in Malaysia. SIRIM has produced the Malaysia Standard (MS) for concrete structure which is known as MS 1195: 1991, but it is a full adoption of BS 8110: 1985. In structure design curriculum in higher institution, British codes are also the main code of practice that is being taught to students.

BS 8110 is produced by British Standard Institution (BSI), which has been widely used in the United Kingdom (UK) and other Commonwealth countries. In the year 2004, Comité Européen de Normalisation (CEN), the European committee for standardization, has published a final design document of Eurocode 2. This publication signifies that Eurocode 2 will be implemented in the UK. The Eurocode 2 is expected to be used parallel with the current BS 8110 for a few years and ultimately Eurocode 2 will soon replace BS 8110 for building design. According to CEN rules, standards having the same scope must be withdrawn within five years after the relevant Eurocode becoming available (Chana, 2004).

The change in the concrete design code of practice in UK will directly affect the design and construction practice in Malaysia. In 2003, The Institution of Engineers Malaysia (IEM) has issued a Position Paper on Concrete Codes of Practice in Local Construction Industry After 2008 (2003). The committee was set up by the Technical Division of Civil and Structural Engineering, IEM. The aim of the committee is to decide and recommend a particular concrete code of practice to be adopted for local construction practices after 2008. The paper recommended Malaysia to adopt Eurocode 2 as the new concrete design code of practice for local construction industry after year 2008. IEM will forward the recommendations made by the Position Paper Committee to higher authority for effective implementation.

The actual scenario is still uncertain but it will bring great implications to the local construction engineering practices. Without early preparation or awareness towards the major challenges in the future, Malaysian construction industry may be left far behind. The study towards the implementing of Eurocode is very crucial and desirable at the current stage in order to help prepare the local construction industry.

1.2 Background of Study

The development of code of practice is a continuous process where the codes need continuous amendments and changes due the development of new research and new understanding of concept. Once the BS is withdrawn, no further development or amendments of BS 8110 will be updated by BSI. Though some believe that the existing BS 8110 is adequate for at least another decade, the industry will not receive the benefit of continuous upgrading available as in Eurocode 2. Further more, local construction industry will face the difficulties in competing with other countries in a global market.

If the construction industries did not take proper actions in ensuring the future of design and construction practices in Malaysia with regard to the withdrawal of British codes, practicing engineers may face the big problems in near future. For example, the new generation of engineers will be in doubt when choosing code of practice to be used because BS 8110 will become non-recognized standards.

Some parties in the construction felt that Malaysia should develop its own code of practice. However, the fact is Malaysia still unable to develop local standards or codes of practices due to limited research works and experts. This is shown in the past experience when Malaysia attempted to develop Malaysian concrete design code, MS 1195 but ended up with full adoption of BS 8110. In addition, it is likely to be beyond the capability for local practitioners to produce new local code of practice in such a short period.

The obvious choice from the presented scenario above is to follow UK footstep by adopting Eurocode as the recommendation in the IEM Position Paper. For sure this huge change will bring great implications and effect to the design and construction industry. Various issues should be identified and considered including the funding, man power and others before implementing the new design code.

1.3 Objectives of Study

The objectives of the study are:

- a) To study the level of awareness of construction professionals towards the shifting of BS 8110 to Eurocode 2
- b) To identify the necessary strategies in implementing Eurocode 2 in Malaysia

1.4 Significant of Study

The implementation of Eurocode 2 in UK has started since 2004 and is still under progress. The impacts the code shifting in UK will directly influent Malaysia's design and construction industry. There are still very limited actions taken by local construction industry to adapt to the code changes.

This project tries to give a broad picture of the future scenario with the withdrawal of BS 8110. The engineers, local authorities and universities should pay attention and take necessary actions to adjust themselves for the changes in the structural design code, in Malaysia, in the near future.

It seems that Malaysia do not have other option but adopting Eurocode 2 to replace BS 8110. The implementation of Eurocode 2 should start immediately after the final decision is made. At that time, the department or agency that should play a vital role in leading the changes is still uncertain and unidentified. The funding during the transition period is another major concern that should be considered. It is very important to study how to handle this issue in the effective way.

1.5 Scope of Study

The scope of project as below:

- a) The questionnaire survey covered only Johor, Malacca, Kuala Lumpur and Selangor.
- b) The study covered only engineers. They were from various sectors in the construction industry, including consultants, contractors and academics.
- c) The study was done focusing only on the strategy of implementing Eurocode 2.