DOUBLE STOREY HOUSE USING AUTOCLAVED LIGHTWEIGHT CONCRETE (ALC) IN LOADBEARING APPLICATION (DESIGN AND CALCULATION)

KHAIRUL HAKIM BIN HJ ABD MUTALIB

B.Eng (Hons) (Civil)

UNIVERSITI TEKNOLOGI MARA

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By

KHAIRUL HAKIM BIN HJ ABD MUTALIB

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DECLARATION BY THE CANDIDATE

I (Khairul Hakim Bin Hj Abd Mutalib, 2001498543) confirm that the work is my own and that appropriate credit has been given where references has been made to the work of others.

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(Khairul Hakim Bin Hj Abd Mutalib)

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ABSTRACT

By adopting a “System Building” approach and using new materials such as Autoclaved Lightweight Concrete (ALC), it is able to construct houses faster and more economically, In order to achieve and to prove the performance of the uses of ALC, this study is to design a unit of double storey house using ALC products in load bearing applications.

ALC is similar to ordinary concrete in that it is also made of sand, lime and cement but a gas-forming agent is added. The result is a new form of concrete that is fire-resistant, noise resistant, non-toxic and a good insulator. It is strong but lightweight and easily managed. A brief review of the materials and its basic properties included in this report can proved the consistency of ALC.

The application of ALC has shown notable benefits particularly in speed and quality since the construction of reinforced concrete is minimized. By taking the benefits of ALC into cost consideration and with the shift towards industrialized building systems, the system will clearly have a competitive edge over conventional reinforced concrete framing system.

By combining the beneficial material and product properties of ALC together with the simplicity of load-bearing construction, it is technically possible to deliver an alternative building system solution for residential low rise applications