

**THE USING OF WATER TREATMENT SLUDGE IN  
LIGHTWEIGHT FOAMED CONCRETE**

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**B.Eng (Hons) (Civil)**

**UNIVERSITI TEKNOLOGI MARA**

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**THE USAGE OF WATER TREATMENT SLUDGE IN  
LIGHTWEIGHT FOAMED CONCRETE**

By

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Report is submitted as

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## **DECLARATION BY THE CANDIDATE**

I, Zaid Bin Misran, 2004335467, confirm that the work is my own and that appropriate credit has been given where reference has been made to the work of others.

*ZAID BIN MISRAN*      **MAY 16, 2007**

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## ABSTRACT

Lightweight foamed concrete was produced by using water treatment sludge that was collected from Batu Ferringhi, Pulau Pinang water treatment plant. Five different percentage of sludge were investigated: 10%, 20%, 30%, 40% and 50% as a replacement for fine aggregate material. Alum sludge was selected to be raw material from other sludge. In addition, the foam was produced by using mixtures of water and surfactant liquid based on surfactant water ratio of 1: 30. There were two test has been undertaken which are compression test and flexural test in order to examine the compressive strength and flexural strength, cubes with dimension 100 x 100 x 100 mm were used for compressive strength and mould of beam with dimension 100 x 100 x 500 mm were used for flexural strength. The result on specimen which contained sludge as a replacement for fine aggregate was compared to the result testing with normal lightweight foamed concrete that have produced with approximately density of  $1300 \pm 10 \text{ kg/m}^3$  at 28 days.