DEVELOPMENT OF CORRELATION GRAPH BETWEEN CONCRETE COMPRESSIVE STRENGTH AND REBOUND HAMMER NUMBER

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DECLARATION

I (*Noor Abiedah Binti Fawzi, 2003367619*) confirm that the work is my own and that appropriate credit has been given where reference has been made to the work of others.

(_____, 15 November 2006)

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ABSTRACT

Rebound hammer method is applicable in three distinct areas such as the uniformity, comparing the quality and the most controversial while at the same time also most widely used is estimating the concrete strength. In this study, a relationship is determined between concrete strength and rebound hammer number by using the data obtained from different grade of concrete at 28 days. The concrete cubes were design using a 0.3, 0.4 and 0.5 of water cement ratio. Correlation curves were derived for different grade of concrete between rebound hammer number and compressive strength. The purpose of this study is to get the correlation between rebound hammer numbers and compressive strength of concrete and to produce an easy way to evaluate strength of concrete when used a rebound hammer. The cube of concrete was cast for grade 15, 20 and 25 of concrete then tested on rebound hammer and compression test at 28 days. From the analysis, correlation between compressive strength and rebound hammer number were constructed. Average compressive strength get from the compression test and the rebound hammer number is obtained from rebound hammer test. For concrete grade 15 the higher strength is at 0.5 of water cement ratio on 28 days testing. The rebound hammer number is 34.18. For concrete grade 20, the higher strength on 28 days is at 0.5 of water cement ratio with the rebound hammer number is 36.24. For concrete grade 25, the higher strength is at 0.5 of water cement ratio on 28 days testing with the rebound hammer number is 37.05. For grade 15 the target mean strength is 27.35 N/mm^2, for grade 20 the target mean strength is 35.68 N/mm^2 and for grade 25 the target mean strength is 40.68 N/mm^2. Only for those who use the design mix based on the standard deviation can used this correlation.