CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Concrete is known as a composite material contain of water, fine and also coarse aggregate. In today’s world, construction industries have been commonly used concrete as one of the main material which it’s used in construction for bridges, buildings, dams and highways. Normally concrete structures can withstand some of the natural disaster such as hurricanes and also earthquakes. Because of the rapid infrastructure development, there will be increasing demand quantity of concrete that will be used in construction.

Currently, the construction industries have been searching the alternatives product that can help to minimize the cost of construction. There are a few products that have been identified which can help to minimizing the usage of cement which cement is one of the main ingredients in making concrete such as fly ash, silica fumes and also eggshell. Among of the products that have been identified, egg shells are known to have good characteristic in minimizing the usage of cement which results in reducing the amount of waste. Other than that, eggshells when mixed with concrete, it will produce high strength durability concrete. The used of eggshells in construction industry will results in reducing the cost of raw materials which directly reduce the cost of construction.
1.2 PROBLEM STATEMENT

There is a major problem occurs involving the using of sand, cement and aggregate for making concrete in construction industry. As the year passing, the demands of the concrete, aggregate and sand have been increasing day by day. The problem that occur is the materials used in concrete which is cement or sand is highly used in construction site which increasing the cost of construction. Besides that, it’s also affecting the environmental problem in waste disposal in construction industry.

To prevent this problem to continuously occur, this study will be carried out to determine the use of a waste material which is eggshells as a replacement to sand in the making of concrete for construction industry used to minimize the construction cost and also reducing the environmental problem.

1.3 OBJECTIVES OF STUDY

The aim of this study is to investigate the compressive strength of chicken eggshell concrete in order to maximize its strength reducing the disposal problem. The specific objectives of this study are:

i. To identify the use of chicken eggshell as partial replacement in concrete.

ii. To determine the flexural behaviour of chicken eggshell concrete beam by using beam flexural test.
1.4 SCOPE OF WORK

Based on the objective, this study will focused on how to overcome the problem that have occurred in construction industry regarding the performance of eggshells as in sand replacement in concrete mixed. The experiments that will be conducted to investigate are slump test, curing, compressive strength and flexural test. Thus, the amount of eggshell waste can be used as sand replacement in concrete beam production. Besides that, this test will be conducted at 1 day, 7 day and 28 days to get the strength and the results will be recorded. Other than that, to determine the hardened of the concrete beam, slump test was chosen as the workability test while the flexural test is to test maximum load beam that able to sustain.

1.5 SIGNIFICANCE STUDY

This researched will be carried out to determine how far the performance of eggshells in the making of concrete for construction industry. Other than that, the effect of eggshell use on concrete beam strength properties by using compressive strength test and the flexural behaviour of eggshell concrete beam by using beam flexural test based on the study also can be identified.