



**DEPARTMENT OF BUILDING SURVEYING  
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**LIGHTWEIGHT CONCRETE AND APPLICATION IN  
CONSTRUCTION INDUSTRY**

**This academic project is submitted in partial fulfillment of the  
requirement for the Bachelor Of Building Surveying (Hons.)**

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## **CHAPTER ONE**

### **TOPIC- LIGHTWEIGHT CONCRETE AND APPLICATION IN CONSTRUCTION INDUSTRY**

#### **1.0 INTRODUCTION**

Concrete is one of the most popular construction materials used since hundred years ago. Because of its flexibility in usage it becomes more important and is preferred compared to timber or steel. The combination of cement, coarse aggregate, fine aggregate and water makes up a concrete. It is an acceptable fact now that not only the strength of concrete which plays a main role, in deciding the quality of concrete but what matters most is the durability at services stage. This technological advancement forms a challenge to mankind to look into various ways and means to improve concrete.

Aggregate is one of the important ingredients in term of strength and bonding in concrete. In general, aggregate in concrete can be defined as those having apparent specific gravity of 2.4 or above. Aggregate can be divided further according to their particle shape such as rounded irregular, angular and flaky and according to their surface texture, i.e. glassy, smooth, granular rough, crystalline and honey, combed and porous. By virtue of the aggregate's density, the concrete produce is quite heavy and has a density of about 2400kg/m<sup>3</sup>.

Reducing concrete density will lead to economical construction because it reduces the cost of transportation, handling and constructability. One of the ideas to make concrete lighter is by the introduction of lightweight aggregate and air entraining agent. Using lightweight aggregate and air entraining agent in the concrete results