

# **“COMPARATIVE STUDY OF LIGHTWEIGHT CONCRETE WITH NORMAL CONCRETE”**



## **PROJECT REPORT**

Submitted by

Mr. ANILKUMAR A HAVANI	4AL16CV007
Mr. BHARATH A C	4AL16CV017
Mr. GANESH L	4AL16CV028
Mr. PRABHULING	4AL16CV062

In partial fulfillment of the requirements for the degree of

**BACHELOR OF ENGINEERING**

In

**CIVIL ENGINEERING**

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI- 590018**

Under the Guidance of

**Mr. SANTHOSH K**

**ASSISTANT PROFESSOR**



**ALVA'S**  
Education Foundation

**Department of Civil Engineering**

**ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY**

**MOODBIDRI-574225, KARNATAKA**

**2019 – 2020**

# ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

MIJAR, MOODBIDRI D.K. -574225 – KARNATAKA

DEPARTMENT OF CIVIL ENGINEERING

## CERTIFICATE

Certified that the project work entitled “Comparative Study of Lightweight Concrete with Normal Concrete” is a bonafide work carried out by

Mr. ANILKUMAR A HAVANI	4AL16CV007
Mr. BHARATH A C	4AL16CV017
Mr. GANESH L	4AL16CV028
Mr. PRABHULING	4AL16CV062

students of Department of Civil Engineering of Alva's Institute of Engineering and Technology in partial fulfillment for the award of **BACHELOR OF ENGINEERING in CIVIL ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI** during the year 2019–2020. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.



Mr. Santhosh k  
Project Guide



Prof. H Ajith Hebbar

Head of the Department  
Dept. of Civil Engineering  
Alva's Institute of Engg. & Technology  
Mijar, Moodbidri - 574 225



Dr. Peter Fernandes

Principal  
Alva's Institute of Engg. & Technology  
Mijar, MOODBIDRI - 574 225, D.K.

Name of the Examiners

Signature with Date

- 1.
- 2.

## ABSTRACT

Light weight concrete plays a major role in construction Industry due to its unique properties when compared to ordinary concrete. Compared with normal weight concrete, light weight concrete can significantly reduce the dead load of structural elements, which makes it especially attractive in multi-storey buildings. Lightweight concretes are widely accepted in the construction industry mainly due to its low density. Pumice lightweight aggregate is a volcanic-origin natural aggregate of very low specific gravity. It is possible to develop light weight concrete of density up to  $1450 \text{ kg/m}^3$  using pumice having a dry density of  $1200 \text{ kg/m}^3$  and sound insulation properties, higher strength/weight ratio, better fire resistance and durability properties.

Light weight concrete plays a major role in construction Industry due to its unique properties when compared to ordinary concrete. This research explains the development of light weight concrete by replacing coarse aggregates with pumice which is a light weight material in different proportions. In present study, a comparison has been made between conventional concrete and concrete made with replacement of coarse aggregates with 10%, 20%, 30%, 40%, and 50% of pumice respectively. The physical and mechanical properties of this concrete were investigated and compared with normal concrete. Properties such as water compressive strength, tensile strength, flexural strength and dry density were measured. It is found that increase in the percentage of pumice stone reduces the mechanical strength and dry density of the concrete mix.