VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"Jnana Sangama" Belagavi – 590 010

PROJECT REPORT ON

"ANALYSIS OF AUTOCLAVED AERATED CONCRETE BLOCKS WITH REFERENCE TO ITS POTENTIAL"

Submitted in partial fulfillment of the requirements for the award of degree.

BACHELOR OF ENGINEERING

IN

CIVIL ENGINEERING

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CERTIFICATE

Certified that the project work entitled **"ANALYSIS OF AUTOCLAVED AERATED CONCRETE BLOCKS WITH REFERENCE TO ITS POTENTIAL"** is a bonafide work carried out by

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in partial fulfillment for the award of Bachelor of Engineering in civil engineering of **Visvesvaraya Technological University, Belagavi** during the academic year 2022-2023, it is certified that all corrections and 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 requirement in respect of the project work prescribed for the said degree.

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ABSTRACT

The use of Autoclaved Aerated Concrete (AAC) blocks as a sustainable building material has gained significant attention due to their lightweight, thermal insulation properties, and environmental benefits. This experimental study aims to investigate the strength characteristics of AAC blocks under different loading conditions. The research involved a series of laboratory tests conducted on AAC block specimens to evaluate their compressive strength. The findings provide valuable insights into the mechanical behavior of AAC blocks and contribute to their application in the construction industry.The experimental program consisted of fabricating AAC block specimens of standard dimensions. The blocks were cured according to the manufacturer's guidelines and subjected to various tests. The compressive strength test was conducted using a universal testing machine, applying a vertical compressive load to the specimen until failure occurred. The flexural strength test involved applying a three-point bending load to determine the load-deflection behavior of the AAC blocks. Shear strength tests were conducted to evaluate the resistance of the blocks to lateral forces.

The results of the compressive strength tests revealed that the AAC blocks exhibited an average compressive strength of , exceeding the minimum strength requirements specified by relevant building codes. demonstrating their ability to withstand bending stresses. , highlighting their resistance to lateral forces.In addition to the strength tests, the study investigated the effect of varying parameters on the strength characteristics of AAC blocks. The influence of different curing periods, block densities, and mix proportions were examined to understand their impact on the overall strength performance. The findings indicated that longer curing periods and higher block densities resulted in increased strength properties, while variations in mix proportions had a marginal effect on the strength.

The experimental study also evaluated the durability of AAC blocks by subjecting them to freeze-thaw cycles and assessing their performance. The results showed that the AAC blocks exhibited minimal deterioration and retained their structural integrity even after multiple freeze-thaw cycles, confirming their suitability for regions with harsh climatic conditions. In conclusion, this experimental study provides a comprehensive understanding of the strength characteristics of AAC blocks. The findings demonstrate that AAC blocks possess excellent compressive strength properties, meeting the necessary standards for construction applications. The investigation of various parameters contributes to optimizing the production and performance of AAC blocks. The durability assessment further confirms their resilience against environmental conditions. These findings encourage the wider adoption of AAC blocks as a sustainable and high-performance alternative to conventional construction materials.

Keywords: Autoclaved Aerated Concrete (AAC), AAC blocks, compressive, experimental study, sustainable building material.