

*Visveswaraiah Technological University, Belgaum*



A  
PROJECT REPORT  
ON

**“EXPERIMENTAL STUDIES ON HIGH VOLUME  
FLY ASH CONCRETE BUILDING BLOCKS  
(SOLID AND HOLLOW) AND MASONRY”**

Submitted to Visveswaraiah Technological University, Belgaum  
in the partial fulfillment of the requirements for the award of Degree of

**BACHELOR OF ENGINEERING  
IN  
CIVIL ENGINEERING**

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## **SYNOPSIS**

In recent times, there is a demand for making concrete construction industry sustainable due to depletion of virgin materials. High volume of fly ash, a waste product of thermal power plant, satisfies the requirement of sustainable concrete.

In present project work an attempt has been made to develop mix proportion for M7.5 grade concrete using high volumes of fly ash. Two trial mixes were used for the conventional concrete and in each trial mix cement replacement levels of 50%, 60% and 70% with fly ash were used. A total number of 64 cubes of size 150x150x150mm and 40 prism of size 75x100x500mm were cast to study the compressive strength and flexural strength characteristics respectively. From the study of compressive strength characteristics a concrete mix using 50% cement replacement with fly ash and a cement content of 90kg/m<sup>3</sup> was used for casting the solid and hollow concrete blocks to be used for masonry. A total 48 solid blocks and 48 hollow blocks of size 300x150x150mm were cast. Three wallettes each of size 0.6x1.0x1.5m were constructed using solid blocks and similar number of wallettes were constructed using hollow blocks.

From flexural strength studies hollow block wallettes showed 87.5% increase in the flexural strength when compared to that of solid block masonry and also value of average weight of each block showed a decrease of 28%, when compared to solid blocks. Also it is recommended that high volume fly ash concrete is a economically viable and environment friendly option for manufacturing of concrete building blocks.

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