

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/326847652>

# PERFORMANCE OF MASONRY UNITS PREPARED USING CONSTRUCTION AND DEMOLITION WASTE AS FINE AGGREGATES

Conference Paper · July 2018

DOI: 10.13140/RG.2.2.22838.55364

CITATIONS

0

READS

71

5 authors, including:



**Ashwin Joshi**

RASTA - Center for Road Technology, Bangalore, India

13 PUBLICATIONS 2 CITATIONS

[SEE PROFILE](#)



**S M Basutkar**

Rashtrreya Vidyalyaya College of Engineering

1 PUBLICATION 0 CITATIONS

[SEE PROFILE](#)



**S. Raghunath**

BMS College of Engineering

24 PUBLICATIONS 50 CITATIONS

[SEE PROFILE](#)



**Kaup Jagadish**

Indian Institute of Science

68 PUBLICATIONS 1,839 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Damage to Building during EQ in Gujarat 2001 [View project](#)



Earthquake Resistant Masonry [View project](#)

## PERFORMANCE OF MASONRY UNITS PREPARED USING CONSTRUCTION AND DEMOLITION WASTE AS FINE AGGREGATES

Ashwin M Joshi<sup>1</sup>, S M Basutkar<sup>2</sup>, Mangala Keshava<sup>3</sup>, S Raghunath<sup>3</sup> and K S Jagadish<sup>4</sup>

<sup>1</sup> Research Scholar, Dept. of Civil Engineering, BMS College of Engineering, Bengaluru (India)  
e-mail: ashwinmjoshi@gmail.com

<sup>2</sup> Asst. Professor, Dept. of Civil Engineering, R V College of Engineering, Bengaluru (India)  
e-mail: somanath\_basu@yahoo.co.in

<sup>3</sup> Professor, Dept. of Civil Engineering, BMS College of Engineering, Bengaluru (India)  
e-mail: mk.civ@bmsce.ac.in ; raghunath.smrc@gmail.com

<sup>4</sup> Retired Professor of Civil Engineering, Indian Institute of Science, Bengaluru (India)  
e-mail: ksjagadish@gmail.com

**Keywords:** Stabilized Adobe, Concrete Blocks, C&D Waste, Demolished Brick Masonry, Sustainable Construction, Masonry Units.

**Abstract.** *Construction activities demand huge quantity of materials like aggregates, masonry units, cement, steel, water etc., and the energy consumed in their production and procurement is considerably large, leading to environment degradation. To have a sustainable and economical solution, energy efficient materials need to be explored and adopted.*

*The study attempts to utilize construction and demolition (C&D) waste in the form of crushed demolished brick masonry (DBM) as an alternative to soil and fine aggregate in (a) stabilized adobe blocks (SAB) and (b) concrete blocks (CB) respectively. SAB's, cast for various combinations; soil and fine aggregate were replaced by crushed C&D waste. Concrete blocks with varying thicknesses and percentage of C&D waste as fine aggregate were cast. A set of five samples, were tested for their strength, water absorption and various other characteristics as per relevant Indian Standards (IS) and were compared with the properties of commercially procured burnt clay bricks and concrete blocks respectively for their suitability to be used as masonry units. Test results exhibited satisfactory engineering properties including strength characteristics, when soil was replaced in the order of 60%-80% in stabilized adobe and about 50% replacement of manufactured sand (M sand) by crushed DBM waste. The experimental program indicates suitability and potential of utilizing DBM waste as partial replacement of soil in stabilized adobe and fine aggregate in concrete blocks. The process outlined in preparing masonry units is one simple way of handling the wastes in an effective manner.*