



Experimental Reuse of Different Waste Material In Bricks And Concrete.

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ABSTRACT: The project is based on the recycling of the rapidly increasing waste material in construction. In India, bricks are mainly composed up of clay, and are generally produced in traditional, unorganized small scale industries. Bricks are important building material and about 250 billion bricks are annually produced by the brick industries. Red clay bricks making consumes larger amount of clay which leads to top soil removal and land degradation. Large areas of lands are destroyed every year especially in developing countries due to collection of soil from a depth of about 1 to 2 m from agricultural land. An important step in brick making is firing of bricks in brick kilns which cause serious environmental pollution and health problems. Brick burning largely influence the concentrations of greenhouse gases in the atmosphere. This causes serious air pollution and also workers in brick industries are prone to respiratory diseases, to avoid all this environmental threats brick made of waste that is originated from the waste as a residue from the different industries and factories, this types of bricks is termed as fly ash bricks which is composed by the different materials such as lime, gypsum, sand, fly ash etc. The objective of this paper is to explain about manufacturing of fly ash bricks in present era and advantages of using it as a construction material. In this paper author explain about advantages of fly ash bricks over burnt clay bricks or red bricks and manufacturing process of fly ash brick.

Keywords – Rice husk, Demolition, Fly ash

I. INTRODUCTION

In this paper a brick is the type of a block used to a build walls, pavements and the other elements in a masonry construction. Properly, then term brick denotes a block composed of a dried clay, but is now also used informally to a denote other chemically cured construction blocks. Bricks

can be joined together using a mortar, adhesives or by a interlocking them. Bricks are produced in a Fired bricks are one of the longest-lasting and the strongest building materials, sometimes referred to as a artificial stone, and have been used since a circa 4000 BC. Air-dried bricks, also known as mud bricks, have a history older than fired bricks, and have an additional ingredient of a mechanical binder such as straw.

The increase in the popularity of a using environmentally friendly, low cost and lightweight construction materials in the building industry has a brought about the need to a investigate how this can be achieved by benefiting the environment as well as a maintaining the material requirements affirmed in the standard. Recycling of a waste generated from the industrial and agricultural activities as building materials appears to be a viable solution not only to such pollution problem but also to the problem of economic design of buildings. Brick belongs to the wide family of a construction materials since it is mainly used for the construction of outer and inner walls in the buildings. The brick industry is the most indicated technological activity sector to a absorb solid waste due to the large quantity of raw material used by the sector as well as by the large volume of a final products in construction Various attempts were made to a incorporate various waste material in bricks production such as the natural fibers, textile laundry wastewater sludge, foundry sand, granite sawing waste, perlite, processed waste tea, sewage sludge, structural glass waste, PC and TV waste, fly ash, sugar cane bagasse ash, organic residue, steel dust, bottom ash, rice husk ash, silica fume, marble and granite waste, municipal solid incineration fly ash slag. This review of the highlights the effects of various waste materials on the bricks property like physical and mechanical properties as well as the thermal insulation.



II. AIM & OBJECTIVE

Aim: - This study tries to make bricks from waste materials.

Objectives: -

1. Effect of waste material on workability of brick and concrete.
2. Effect on compressive strength of concrete and brick using the waste material in different proportion
3. Effect on flexural strength of concrete using waste material
4. To reduce the cost of the concrete block and brick by replacing waste material in some proportion.
5. To utilize the waste materials available in the agro-industries .
6. To overcome the solid waste/municipal waste problem
7. To improve the physical and chemical properties of concrete block and traditional brick.

III. RELATED WORK

Ryan (1999)

Investigated on concrete durability. He in his paper through QLC group addresses two aspects of concrete serviceability, which has been the subjects of extensive recent discussion & research: sulphate attack & chloride ion penetration. The basic chemistry involved in each of these processes is outlined by him differentiated & their effects on concrete & reinforcing steel are described. His paper relied for actual test data. Showing relative performance of binder options. On experimental work carried out by researchers at the CSIRO division of building. Construction & engineering.

Scaly et al (2002)

Researched on concrete subjected to sulfate attack undergoes a progressive & profound reorganization of its internal microstructure. These alternations have direct consequences on the engineering properties of the materials. As seen from his studies, concrete undergoing sulphate attack is often found to suffer from swelling & cracking.

IV. METHODOLOGY

Materials used:

1. Cement - 33 grade PPC
2. Rice husk
3. Sand
4. Aggregates – Coarse & Fine

Experimental procedure:

Waste water:-

The methodology adopted consists of both preliminary investigations and experimental investigations. Preliminary investigations: Cement is a basic binding material used in concrete and for all the construction works. In our project we used Portland pozzalana cement. Portland pozzalana cement is blended cement it is produced by intergrading OPC clinker along with pozzolanic materials in certain proportions. In our project we used PPC 33 grade cement. The below table -1 shows the

ACTUAL PROCEDURE TO BE FOLLOWED:

Ash bricks can be prepared by the use of different semi automatic and automatic machines with the use of moulds pre attached in machines, where using of manual moulds in the manufacturing method leads to frequent change in the size of the bricks and may results in the poor exterior quality of the bricks. Approximately every ash bricks manufacturing plant uses machines to produce ash bricks, which led to the use of less labours and makes the cost less of per ash bricks which can be easily afforded by low to high class families. There are 3 different proportion by which fly ash bricks can be prepared which depends on the materials available.



Fig.4.1

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