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Comparison of Red Brick and Autoclaved Aerated Concrete Block (AAC) for Brick BatCoba

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Abstract- *the Primary Objective of this Paper is to compare the Physical characteristics of autoclaved lightweight concrete blocks and standard strong clay bricks, including their densities, water absorption rates and compression strengths. The most of time, an autoclaved aerated concrete block is more durable than the typical clay brick. The building business uses cement and brick largely. The most common exterior wall material used in building construction is red burnt brick. And more global markets. We compared the AAC block and burnt clay brick used in building construction here using a standard testing method ,which will be tabulated before conclusion are made.*

Key Words*: - AAC Block, Red Brick.*

I. INTRODUCTION

The most urgent needs for people today is to ensure that future generation have access to resource that are at least as good as those we have now. People continuously interact with the environment, and we are aware of its negative impact. Resources are gifts form nature that enable people to meet their requirement. They come in two category, renewable resource, like wind and hydropower, can be restored quickly after use and cannot be replenished. Even through the use of non-renewable degrades the environmental causes pollution, current technology allows them to be used at an alarming rate, which has led to their diminishing quantities. While renewable resources are friendly to the environment, converting them into useful forms of energy is expensive. Brick have many Disadvantages despite begin an important part of the India developing industry. Not only people, but also agriculture and vegetation. The threat of global warming and climate change is caused by high levels of carbon dioxide and other toxic gases. Additionally, the priceless soil used to make brick could more effectively for farming, ensuring the food security of the growing population. Autoclaved aerated concrete block is one of these green construction materials because it is more efficient and less harmful to environment. It not only makes use of refuse material like fly ash but also gives building the necessary strength.

II. RESEARCH METHODOLOGY

Manufacturing

AAC: - Aerated Autoclave concrete block are light weight. It is produced by mixing aluminum powder with a suitable amount of lime, cement, fly ash. During 80 years have seen the use of autoclaved aerated concrete, a lightweight cellular concrete. The different stages are involved in manufacturing of AAC blocks, Processing of Raw Material. Fly Ash is the Main Component used to make AAC Brick. Other step Include Dosing, Mixing, Casting, Rinsing, Pre-curing, Entering Autoclave, Packing, and Loading.

Red Burnt Brick: - Brick Manufacturing involves several stages, including the preparation of clay, molding, drying, and burning of the brick. Bricks are provided commonly as rectangular blocks and are common building material. When used in buildings, burnt clay brick need to be rendered or plastered with mortar. Burnt clay block can be used to build masonry walls, foundation, and column.

Sizes of Brick and Block

1. Autoclaved Aerated Concrete Block (AAC):- 600X200X100 mm

2. Red Burnt Brick:-190X90X90 mm

III. TEST PERFORMED

The AAC Block as well as the Red Burnt Brick sample have been run through the Following tests, the3 Samples AAC blocks and Brick Were Selected, and Three of Them were tested for Water Absorption Test and 3of them for compression strength test. Is 5454:1976, the Indian

standard "Clay Building Brick Sampling Method is used for the various brick test that are Performed."

Water Absorption Test

Procedure of Test

A). At a Temperature of between 105 and 115 °c, the dry Sample until it reaches a Mass that is Essentially Constant.

B). Cool the sample to Room Temperature Before Measuring its Weight.(W1) it is forbidden to use any sample for this purpose that is too warm handle.

C). 24 Hours in clean water at 27 ^{0}c with the specimen completely dry. A Wet the specimen completely Dry. A wet cloth should be used to remove any remaining water after the sample has been removed from the water. The sample should be weighted (W2).

Formula:-

Water Absorption = W2-W1/W1*100

Fig.1.weighing Balance

Fig.2.Oven Dry

Observation

AAC Block

Sr. no.	Dry weight of Sample (W1) Kg	Wet weight of sample (W2) Kg	Water Absorption (W2-W1)/W2* 100	Avg %
1.	2.408	4.064	40.748	
2.	2.682	3.614	25.788	
3.	2.556	3.917	34.745	33.7

Red Burnt Brick

Sr. no.	Dry weight of sample (W1)	Wet weight of sample (W2)	Water Absorption (W2-W1)/W2* 100	Avg %
1.	2.389	2.900	17.62	
2.	2.504	2.975	15.83	16.9
3.	2.324	2.810	17.29	

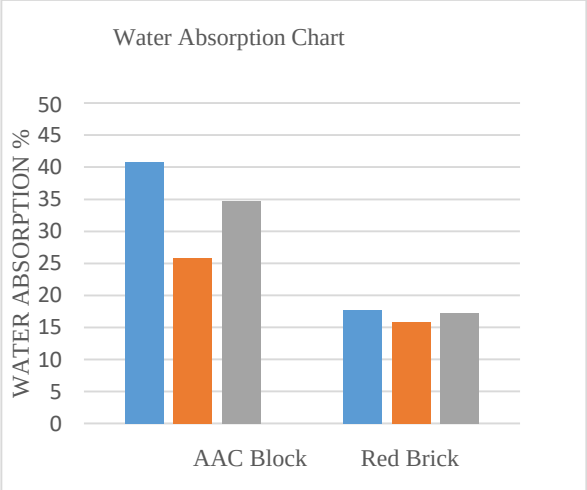

Fig.3.Water Absorption chart

Compression Strength Test

Procedure of test

A).Arrange the Specimen in Between the testing Machine plates with its mortar filled face facing up and its flat face Horizontal.

B). if failure occurs, Apply force axially at a constant Rate of 14N/mm^2 per minute, and Record the highest load at Failure.

C).The maximum load at which the specimen fails to continue to increases the indicator Reading on the testing apparatus is known as load failure.

Formula: -

Compression Strength = Load/Area

Fig.4.compression machine

Obsrvations

Sr. no.	Compression Strength (N/mm^2)	
	AAC Block	Red Burnt Brick
1.	3.12N/mm^2	4.40N/mm^2
2.	3.61N/mm^2	1.82N/mm^2
3.	3.27N/mm^2	3.03N/mm^2
Average	3.33N/mm^2	3.08N/mm^2

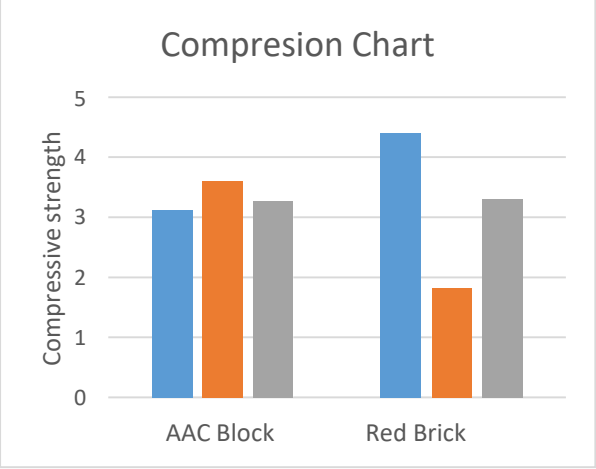

Fig.5 Compression strength chart

IV. COST COMPARISONS OF AAC BLOCK AND RED BURNT BRICK

Sr. no	Type of Brick	Cost Per Piece (Rs.)
1.	Red Brunt Brick	5.5
2.	Autoclaved Aerated Concrete (AAC)	40

V.CONCLUSION

- We Study about Different types of Brick and which ones are appropriate for Brick Bat Coba and which once are not.
- Based on The Observation, we learned that red Brick best for a Brick Bat Coba and that AAC Blocks causes it to fail.
- As a result of AAC Block failure which was found during testing, voids developed between then AAC Block and the Mortar material.

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