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Comparative Cost Analysis of Conventional Method and Precast Concrete

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Abstract: The main reason for doing this research is that the cost of building a simple house for common man is very high cost. So we are going to test the precast concrete option in every possible way and try this other option are available to do. If we using precast than other options we saving almost 60 to 80% cost.

Keywords: Precast, cost efficient, brickwork, AAC block

I. INTRODUCTION

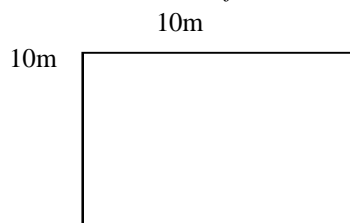
Precast concrete technology is economical process which has to be change brick work clay brick and aac brick. Precast concrete used to be many other composition of cement concrete. In this technology used to panel system precast concrete. Here we analysis of precast concrete production cost, labour charges, and compare to other conventional technique.

II. LITERATURE REVIEW

1. Cost optimization in building in building construction by compare various materials in brickwork-Aditya divyadarshi, kshyana samal-Amongst all the crucial challenges faced by the developing countries, competent shelter for all people is one of those. According to a survey in India, by 2015 a shortage of 35-40 million houses with almost 99% of shortfall coming from families earning less than 5 lakhs rupees per year. The main objective of our research is to decrease the cost of building by replacing burnt clay bricks with economical and advanced materials like AAC (Autoclaved Aerated Concrete) blocks and without affecting the strength of the structures. This research has been done for middle income group and therefore we have taken 1 MIG unit in Bhubaneswar, Orissa

III. ANALYSIS

A. Brickwork calculation for 10x10x3.5m



Brick = 12400

Total brick = 12400 no x 9Rs

Total price = 111600/-Rs.

Cement = 40 no bag

40 x 350 per bag = 14000/-Rs.

Sand = 228cft

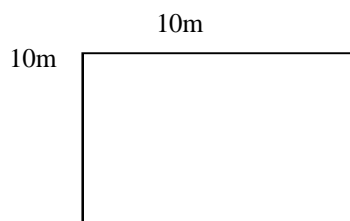
228 x 30 = 6840/-Rs

= 132440

Labour charges add 20%

Total = 158928/-Rs.

B. AAC Block work-



No Block required= 1200no

1200 x 90rs per block = 108000/-RS

Cement= 30 bag required

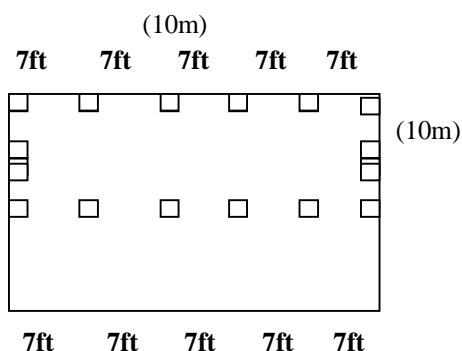
350 x 30 per bag = 10500/-Rs

=118500

Labour charges add 20%

Total = 142200/-

C. Precast concrete work



No of columns= 18

18 x 1000 per column=18000/-Rs

No of panels=18 x 10= 180 panels

180 x 500= 90000/-Rs

Concrete for foundation= 0.60x0.60x0.60 ft (foundation box)

$0.216\text{m}^3 \times 18 \text{ columns} = 3.88\text{m}^3$

Cement= 28 bags

28 x 300= 8400 Rs

Sand= 2.118m^3

$2.118 \times 1000=2118\text{Rs}$

Total= 118518/-Rs

IV. RESULT

SR. NO	MATERIAL	COST	COMPRESSIVE STRENGTH
1	BRICK	158928/-Rs	10.3N/mm ²
2	AAC BLOCK	142200/-Rs	4N/mm ²
3	PRECAST CONCRETE	118518/-Rs	16N/mm ²



V. CONCLUSION

As we can see, we compare brickwork, aac blocks, and precast concrete and we get result best option for single storey homes precast concrete is best option. Precast concrete is economical, higher strength, high durability. Price difference between these comparison is big and we concluded precast concrete construction is best for all the way of comparison.

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