RESEARCH FINDINGS

Jute Composite Tin (JCT) was superior to Corrugated Iron (CI) Sheet in almost all the test. JCT is more durable than CI and GP sheets. Because of the properties of jute and resin, much higher heat insulation was achieved. The JCT is rust proof and contains no toxic materials like lead or sulfur. Since there is no iron involved it is completely saline water resistant. Sound proofing is higher and it has very low thermal expansion

	Corrugated Iron Sheet (CI SHEET)	**Jute Composite Tin (JCT)**
Cost (100 taka = 1 EURO)	5000 – 20000 taka per baan	10,000 taka per baan (*1 baan = 180 sq. feet)
Saline resistance	Subject to corrosion	Corrosion proof
Toxic material	Lead, Sulfur, Galvanizing material, corrosive iron etc.	Resin.
Heat required to produce 1 baan	600 – 700 degrees F.	No heat required.
Insulation and comfort level	Very low.	High

Compressed Earth Blocks (CEB) has been around for a long time and many researches have been done to show its superior quality over regular kiln fired bricks. In this particular project, we concentrated on environmental impact, insulation and usability.

The table shows the comfort index of users inside the building compared to the existing brick cement houses. Y axis represents air temperature while X axis represents hours during the day.

	Regular Kiln fired Bricks	**Compressed Earth Blocks**
Cost (100 taka = 1 EURO)	7 – 10 taka per piece	5-7 taka per piece (based on 1000 bricks per day)
Water resistant:	Yes	Yes
Environmental impact:	8 million tons of carbon emission in Bangladesh every year	Very minimal. CEB's are made with 5% cement stabilization, therefore carbon emission of cement should be considered
Heat required to produce 1000 bricks	1000 – 1500 degrees F	No heat required.
Mortar requirement :	Mortar cement is required for laying bricks and wall plastering	Mortar is only required to make internal columns
RCC Columns requirement:	Columns required every 10 – 15 feet for brick filling	No columns required. Walls are load bearing and internal columns are inserted through the bricks.

Cured bamboo was used instead of regular bamboo to extend the longevity of the building. If the cured bamboo is not found locally, it can be cured with minimal effort. The cost of curing needs to be added with the individual bamboo cost. The selected findings are given below.

	Regular bamboo	**Cured bamboo**
Cost (100 taka = 1 EURO)	100-150 taka per piece	170-200 taka per piece
Termite resistance	No termite resistance.	Termite resistance.
Availability	Widely available	Not widely available.
Processing time	Can be used directly after cutting	Need to cure for at least 3-4 weeks
Longevity	3- 10 years depending on annual perspiration.	20 – 50 years depending on maintenance

INFERENCES AND CONCLUSION

This particular type of material and construction techniques has a huge potential in rural Bangladesh. Furthermore, carbon emission is significantly reduced in the new method, resulting in a very positive environmental impact. Since the labor cost is cheap in Bangladesh, Compressed Earth Blocks (CEB) can be produced in large scale and in much more cost effective ways. As a result, the price of house will be significantly lower and more for the rural people. The CEB machine requires investment at the beginning. However, this also has potential to create local entrepreneurs. Moreover once the new methods enter mainstream construction, more masons and entrepreneurs will be interested to build with these bricks. Jute Composite Tin on the other hand will have rather big challenge to penetrate the market because of its high price. However, since it is rust proof and once the economies of scale will be achieved in mass production, it will have a significant advantage in the coastal areas where corrosion of regular CI sheet is a major problem.

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