Course Name: Low Cost/Cost Efficient Construction.

COTM 5th Group one and two

Chapter 1: Introduction

Academic year: 2020, semester II

Outline of chapter one

Concept/theory of cost efficient construction

Importance/Objectives

Low cost = Low energy.

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Concept/theory

- At least one hundred million people in the world have no home. If those with poor quality housing are included, the number is more than one billion.
- The total number of homeless is growing worldwide housing needs are expected to double over the next 50 years.
- In Africa alone, they are expected to grow more than threefold.

Concept/theory…

Why Low Cost Housing Construction is Required?

Increase in cost of construction due to:

- Due to inflation rates getting into double digits, the construction costs have registered a similar increase, primarily due to cost of basic building materials such as steel, cement, bricks, timber and other inputs as well as cost of labor.
- For any nation whether developed or developing this is mandatory for them to make their rural areas a major priority for concern. Prosperity of nation lies in the fact that their rural and backward areas are developed enough to fulfill the necessities of the residents living there.
- As a result, the cost of construction using conventional building materials and construction is beyond the affordability of the economically weak and low-income groups of population as well as a large cross section of the middle - income groups.

=> There is a need to adopt cost-effective construction methods either by up gradation of traditional technologies using local resources or applying modern construction materials and techniques with efficient inputs leading to economic solutions. Affordable housing is a term used to describe dwelling units whose total housing cost are deemed affordable to a group of people within a specified income range. Affordable housing policies seek to house as many people as practical at the lowest cost, leading in the past to overcrowding

Importance/Objectives

- To take advantage in a sustainable and ecologically acceptable way , use local resources for the production of alternative construction materials;
- To promote the production of local construction materials and alternative traditional and modern constructive systems that are popularized and disseminated within Communities,
- To contribute to the creation of regulations of alternative constructive systems and uniformity of the method and quality of the local production materials.

Application areas

- Land cost should be kept to a minimum.
- Compact design.
- Community buy-in to the housing process from the start.
- Location of project should be close to existing bulk services.
- Maximum utilization of space inside house.
- Implement measures to reduce overheads cost (enough human resources on site).
- Buy material in bulk and good house design (simplifies construction, saves time and resources).

Strategic Plans

1. Selection and evaluation of materials and processes.
2. Up scaling and modernization of home-grown production technologies
3. Selection, evaluation and establishing economics of emerging methods of construction
4. Economy and efficiency in housing/building construction projects
5. Strengthening technology dissemination and demonstration capabilities.
6. Training and skill up gradation including entrepreneurship development.
7. Field level applications of innovative building materials and construction technologies in mass housing projects.
8. Use of vegetable steel in housing and building construction
9. Vulnerability reduction, risk assessment and disaster resistant construction.
10. Technology Transfer

Low cost = Low energy

The cost of energy in the production of cement or clay bricks/tiles => 50 to 70 per cent of the direct cost of manufacturing.

The use of energy in the production process has to be optimized so that overall cost of building construction is reduced and the polluting impact of the excessive use of fossil fuel is arrested.

Construction activities consume 50% of all resources globally, 70% of all global timber products and 40% of energy.

Cost-effective construction technologies can bring down the embodied energy level associated with production of building materials by lowering use of energy-consuming materials.

five phases of energy consumption in buildings:

- embodied energy
- grey energy
- induced energy
- operational phase and during demolition process

Quize(5%)

1. Why Low Cost Housing Construction is required mandatory? Describe root causes

2. Are Low Cost building Houses Safe? Describe your answer.