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LOW COST HOUSING

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1. INTRODUCTION

Low Cost Housing is a novel idea that emphasizes wise financial planning and the use of methods that lower construction costs by utilizing locally accessible materials and advancing technology and skills without compromising the strength, functionality, and longevity of the project. There is a widespread misperception that affordable housing is only appropriate for low quality labour and that it is built using low quality, inexpensive building materials. The reality is that affordable housing is made possible by wise resource management. Economy can also be attained by delaying or implementing completing activities in stages. Utilizing organic materials such as straw, bamboo, fibers (jute, coir), earth, etc. has been done for ages. In addition to being readily available locally, these materials are also simple to work with and quick to create, which lowers expenses. Additionally, the pozzolanic qualities of industrial wastes like fly ash and rice husk make them good replacement materials. This essay seeks to compile research on various items while taking into account their accessibility.

2. LOW COST HOUSING MATERIALS

According to the source of the building materials, low-cost housing materials can be broadly divided into natural and man-made resources.

2.1 Bamboo

Bamboo was one of the first building materials utilized by mankind, along with stone and wood. Even now, it is still employed to build homes in rural Asia, Africa, and Latin America. It is a green building material that is particularly well- liked in India because of its accessibility, light weight, and durability. To make it termite resistant, it must be treated with the proper chemicals. Bamboo is used to build homes in India's earthquake prone regions because the nation generates around half of the world's bamboo. The material possesses tensile strength that is greater than steel. These are used for roofing because corrugated bamboo sheets, which were recently developed and are regarded to be the ideal substitute for asbestos and galvanized sheets, are available.

2.2 Concrete Blocks

Concrete blocks are produced in factories according to the demands of home builders. These blocks, which can be formed by combining Portland cement, water, stone, or quartz, can be solid or hollow and are typically light, sturdy, and fireproof. These are used for the foundation, basement walls, and partition walls because their cores can be filled with steel rods to boost strength. Because they are made of cement, they are resistant to termites, soundproof, and provide natural insulation against heat and cold.

2.3 Compressed Earth Bricks

These bricks are made of mud and strengthened with a cement and lime mixture. They are also known as adobe bricks and are non-toxic and fire resistant. The fact that compressed earth bricks are cheap, dense, and widely used for exterior stucco work makes them one of the most affordable building materials.

2.4 Interlocking Bricks

For walls, these bricks slot together like a jigsaw puzzle with other bricks of the same kind. They are created with a projection on one side and a depression on the other. The materials used to make interlocking bricks include gravel, cement, and laterite stone powder. They are regarded as green building materials as compared to baked bricks because they dry naturally and are just as sturdy.

2.5 Mud Bricks Reinforced By Natural Fibers from Straw and Coconut

This environment friendly building material is commonly used in rural areas to build weatherproof structures because of their durability and strength. Natural fibers like coconut and straw strengthen the strength and durability of pure mud, and Sulphur coating increases the walls water resistance. Cereal straw, bagasse, corn straw, and rice husk are combined with cement to create additional varieties of fiber bricks that are strong and corrosion- resistant.

2.6 Magnesium Oxide Cement

This product, sometimes known as “eco-cement”, is made from variety of waste materials, yet it only requires 20 to 40 percent of the energy required to make Portland cement. It has good durability. It has no negative effects on the occupants of the dwellings where it is employed as a sustainable building material.

2.7 Fly ash Hollow Bricks

The load-bearing walls of low rise buildings are constructed using these bricks, which are made of fly ash, stone powder or sand, slag, cement or gypsum for bonding, among other ingredients. Additionally made from mineral waste, glass, water, and fly ash, some varieties of fly ash bricks provide natural thermal insulation for affordable housing while also being water-and energy-resistant.

3. BUILDING COST

The building construction cost is divided into two parts, namely;

- a. Cost of Construction Materials: 65 to 70 %
- b. Labor Costs : 65 to 70%

Because we use resources that are readily available locally, building material are now less expensive in low-cost homes, and labor expenses can be reduced by properly scheduling our workdays. Choosing a more cost-effective material or upgrading the design are two ways to save costs.

4. Areas From Where Cost Can Be Reduced.

- The plinth space will decrease by using the thinner wall style. A solid 15cm thick concrete block wall, for instance.
- Use locally accessible materials in novel forms, such as earth cement blocks, to replace burned brick.
- Instead of burning brick, switch to energy-efficient alternatives like concrete blocks.
- Use environmentally friendly alternatives to traditional building materials, such as R.C.C replacing the wooden frames on doors and windows.
- Every component of a house should be planned in advance, and the design process should be rationalized to reduce the size of each component in the building.
- Each element of the house must be examined to determine whether it is required: if not, it should not be employed.
- The wastage of materials caused by the demolition of an unexpected component of the house can be prevented by planning every single component of the structure.

5. CONCLUSION

The types of buildings being constructed, the owners budget, the sites location, the availability of building materials, efficient construction management techniques, etc. will all affect how much can be saved on construction expenses in addition to the basic guidelines listed above. It takes effective planning and design processes to attain overall cost effectiveness of 25% in actual practice. This might be accomplished by hiring a professional engineer or architect to oversee the construction.