CONSTRUCTION OF E3 SHELTER BY CIVIL WASTE MATERIAL: A REVIEW

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***ABSTRACT**: Shelter are the basic needs of all human beings .waste materials are used for to designed the shelter. Locally available eco-friendly materials are used in shelter .The waste material like broken pieces of granite , bricks, tiles are used it gives the enough strength to the shelter due to use of waste material it reduced the cost of structure and waste material are easily available in reasonable rates the structure are eco-friendly and economic. Waste material are reused therefore the shelter is eco-friendly. The primary objective of the project is to plan designed E-3 shelter (ECONOMIC ENERGY EFFICIENT, ECO-FRIENDLY).*

INTRODUCTION

The process of development also leads to the generation of waste material along with it. Right from the early stage of construction, waste material is been produced out of it. Constantly increase in waste material from the construction industries leads to the major problems of disposal operation. The waste generated from construction work is huge in quantity and occupies large space. In India, of the total waste generated, 25% is from construction material. Few of the construction waste material are been listed below,

- Broken bricks
- Scrap metal
- Wood
- Broken pieces of granite
- Broken pieces of tiles
- Electrical wiring
- Nails
- Insulation
- Rebar
- Plaster.etc.

The necessity has been arise to manage the construction waste for sustainable development. Various measures are been taken to reuse the construction waste material in suitable way as per the demand of project. Many companies in recent times are striving hard to reuse the construction waste in many ways.

The project undertakes the creation of shelter using the waste material from the construction site, enabling the reduction in cost of construction material, thus making it economical and sustainable in use, also proving it to be eco-friendly and efficient.

In future time the project aims in economical and speedy shelter construction from construction waste material. The type of construction can be used in various bus stops construction also in traffic posts, toll tax counter, small stationary shops, shelter for monuments, public toilets.

Also in disaster affected areas where the waste is generated in huge quantity and shelter becomes one of the important need for the homeless people, 3E shelter project find its way in helping people, government, and the environment for construction of shelter in economic and efficient way.

LITERATURE REVIEW

Arpad Horvath et.al (**1999**) He quoted that construction must pay heed to the widespread social interest in environmental preservation. Construction is supposed to provide the infrastructure for the ever-improving lifestyle of the world population. The construction industry as one of the largest and most important industries and at the same time one of the largest polluters, cannot wait until the goals of sustainable development have been identified and tool to achieve them have proved practical.

Bo Xia et.al (2014) Has cited that the construction industry has a responsibility to ensure the sustainability of both its products and processes. Sustainability

assessment is a procedure used to ascertain whether environmental and social changes arising from human activities and use of resources are decreasing or increasing our ability to maintain long-run sustainability.

Katherine S. Dewlaneyet.al (2012) revealed that though the rapid growth in LEED is exciting, it is essential for designers and constructors to identify, analyze, manage, and respond to the increased safety risks associated with sustainable design and construction. The influence of sustainable design and construction methods were qualified as direct multipliers (positive or negative) against base-level conditions. This increase in risk knowledge is essential for identifying the highest risk design elements and construction activities and for prioritizing safety resources that must ultimately be allocated to respond to these risks.

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Millions of tons of waste is produced in the world each year and most of it is not recyclable. Furthermore, recycling waste consumes energy and produces pollution. In addition, accumulation of waste in the suburbs and the disposal of waste are very dangerous for the environment. Using waste material in concrete production is an appropriate method for achieving two goals: eliminating waste and adding positive properties in concrete. Since the green concrete industry is expanding, it is necessary to evaluate concrete that contains waste from all aspects in order to determine its capability. This literature study consists of two parts i.e. the use of waste as a substitute for cement and as a substitute for aggregates. Leading waste material that has been used as substitutes is highlighted and the characteristics of the resulting concrete is evaluated.

Tavakoli et.al (2012) Concrete, one of the most important construction materials in the construction of infrastructure and development facilities, has the potential for significant and positive environmental participation.Waste material in concrete can be used as cement or aggregate replacement, fillers or fibres. As cement is a dangerous pollutant of the environment, waste material can be used as a substitute for cement as well as for aggregates. The environmental advantages of using waste material as a replacement for cement can be investigated in two ways. One is the removal of a part of the cement from concrete and the other is the use of waste material that is useless in concrete. Due to the volume of cement consumption around the world, a lot of waste can be used as a replacement for concrete. From the standpoint of reducing cement, there are many benefits attached to the use of pozzolans, including the reduction of greenhouse gasses, the most hazardous of which are carbon dioxide and nitrogen oxides.

CONCLUSIONS

- After studying the reports and various review papers we concluded that the companies are striving hard to get into the process of reusing the waste material generated from the construction site into efficient and economical use of waste material into construction of shelters.
- Also the aim of the project satisfy the needs of peoples in disaster affected area in providing a temporary shelter which acts as the basic need of the time.
- As we are aiming in using waste material, it helps in reducing the pollution which acts as the helping hand in development of sustainable life in future times.

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