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Resource Efficient Structure by Green Concrete

Mayuri Awale¹, Shainila Qureshi¹, Ayaz Madare¹, Oais Patel¹, Mohd Azaz²

¹U.G. Student, Department of Civil Engineering, , Anjuman College of Engineering & Technology, Nagpur,
Maharashtra, India

²Assistant Professor, Department of Civil Engineering, , Anjuman College of Engineering & Technology,
Nagpur, Maharashtra, India

ABSTRACT

“Green concrete” the word itself denotes to the concrete which is eco-friendly. It is a Concrete that uses less energy in its production and produces less carbon dioxide than normal concrete can be termed as GREEN CONCRETE. The other name for green concrete is resource saving structures with reduced environmental impact for e.g. Energy saving, co2 emissions, waste water. (2) Concrete decreases the emission of CO₂ by 10% .

Keywords : Green Concrete, Recycled Concrete, Environment Friendly Materials.

I. INTRODUCTION

Green Concrete is the revolutionary topic in the history of concrete industry, this was first invented in Denmark in year 1998.(2)Having an overview of today’s scenario of increasing amount of pollution Green Concrete as the name suggests is eco-friendly and saves the environment by using waste products generated by industries in various forms like rice husk ash, micro silica, etc to make resource-saving concrete structures. Use of green concrete helps in saving energy, emissions, waste - water. As per economical point of view Green concrete is very often also cheap to produce as it uses waste products directly as a partial substitute for cement, thus saving energy consumption in production of per unit of cement (2).Using green concrete eliminates many costly efficient materials.

Why to use Green Concrete? Green Concrete is essential because we are running out of resources to

continue living as we have in the past. Green concrete has greater strength and durability than the normal concrete. It is realistic to assume that the technology can be developed, which can reduce the CO₂ emission related to concrete production. Generally the construction industry accounts for a massive environmental impact due to its high demand of energy. As a result of the awareness built during the past few years about green- house effect and damage to the nature, more people and countries became conscious about their future.(2)We want there to be enough resources for everyone now and in the future.(1)

Green concrete capable for sustainable development is characterized by application of industrial wastes to reduce consumption of natural resources and energy and pollution of the environment. Marble sludge powder can be used as filler and helps to reduce the total voids content in concrete. Natural sand in many parts of the country is not graded properly and has excessive silt on other hand quarry rock dust does not

contain silt or organic impurities and can be produced to meet desired gradation and fineness as per requirement.(2)

Uses & Comparative Analysis with normal concrete:

- Green Concrete is widely used in construction of bridges,
- It can also be used in building construction.
- Column can also be casted from this concrete.
- Construction of road works is also carried out .
- Having more strength.
- Reduces the consumption of cement overall.
- Green concrete is economical compared to conventional concrete.
- Green concrete having better workability than conventional concrete.

II. SOME STRUCTRES OF GREEN CONCRETE

Increasing concept of sustainable development has evolved the use of Green Concrete , with recycle materials.

As Indian is facing pollution and disposal issue it will not take much time for Green Concrete to come to India.



Figure 1. green concrete



III. SUITABILITY OF GREEN CONCRETE IN STRUCTURES

Reduce the dead weight of a facade from 5 tons to about 3.5 tons. Reduce crane age load, allow handling, lifting flexibility with lighter weight. Good thermal and fire resistance, sound insulation than the traditional granite rock. Improve damping resistance of building. Speed of construction, shorten overall construction period. (4)

IV. CONCLUSION

This study reported a critical review of existing studies related to green concrete worldwide. This paper deals with the actual concept of Green concrete, its need and the current existing scenario of Green Concrete. The objective of Green concrete is providing sustainable structures while keeping the importance of health and nature in mind. It can be concluded that definitely use of concrete product like green concrete in future will not only reduce the emission of co2 in environment and environmental impact but also economical to produce.(3)

V. REFERENCES

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