A Review On Recycling Of Demolished Concrete Waste

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Abstract

In the present world of industrialization, recycling construction material plays an important role to save and preserve the natural resources. This study is meant to seek to greener environment since it looks to develop a mechanism to recycle waste material for construction. The utilization of the recycled aggregate has been begun in a massive quantity in the various countries for big construction work. Recycle aggregates and solid wastes gained from construction and demolition can be used as prospective application in construction industry as an alternate of natural aggregate. It helps to preserve the natural resources. It occupies little space for landfill disposal. In the laboratory, the crushed tile aggregate is used as substitute for partial replacement for natural coarse aggregate in concrete.

Keyword-*Concrete, Recycled , Strength*

Introduction

Recycling Construction and Demolition Debris (C&D) recycling is one of the most significant aspects of this movement. C&D recycling is among the most visible commitments that a developer can make to sustainable building, visible to every worker on the site and to every passerby. In providing materials to local vendors and processors, job site recycling creates employment and economic activity that help to sustain local economies. And perhaps most important, on a lifecycle basis, recycling produces usable materials at much less environmental cost than materials from primary sources. That is, in addition to conserving raw materials, recycling conserves energy and water and brings down the production of greenhouse emissions and other pollutants. On and off the job site, recycling is one of the most significant commitments that can be made to sustainable building.

Literature review

M. Nuruzzaman & M. Salauddin study puts forward an overview on the development and application of recycled aggregate in the production of concrete. Nowadays, in a large part of the world, demolition of old and deteriorated buildings and traffic infrastructure and their replacement with new ones is a usual phenomenon. Consequently the volume of demolished concrete is rising day by everyday which produces a lot of waste and ultimately pollutes the environment. However, because of rapid industrialization, production and utilization of concrete is rapidly increasing which causes the increase in consumption of natural aggregate as the largest concrete component. Hence, the preservation of natural aggregates sources is being threatened day by day. On the other hand, the protection of the environment has become one of the major issues of our present world. The reduction of raw material consumption and energy consumption is critical elements in this regard. Therefore, recycling of demolished concrete for new construction is essential to preserve the natural resources as well as to solve the disposal problems of demolished concrete.

Md.Ateek Khan and Ravi Ku. Chaturvedi the study on need of natural aggregate is rising day by day because of huge rise in rate of use of concrete in construction technology all over the world and soon it will get hard to fulfil this necessity by regular natural aggregates. Recycled aggregate is created by material obtained from demolished concrete structure. Exploration and exploratory works on the utilization of recycled aggregates have proved that great quality concrete can likewise be delivered with recycled aggregates. The main objective of the present work is

to examine the plausibility of utilizing recycled aggregate acquired from development and obliteration squander in concrete mixes in lieu of the characteristic fine aggregate. This study is incorporated the readiness of concrete cube and beam examples utilizing concrete blends comparing differed rate of recycled aggregate and common aggregate. Physical properties of recycled fine aggregate and characteristic aggregate are focused in the material testing lab. Destructive/non-destructive tests are performed on the concrete cube and beam specimens wereare readied for M15 and M20 Grades of concrete in the shifted rate of recycled aggregate and also regular aggregate to discover the compressive and flexural quality of concrete blends. Results are looked at and displayed in the postulation.

Conclusion

Following conclusion are made

- use of these materials before applications. Properties such as shrinkage, durability, etc, needs to be extensively and carefully studied.Further testing and studies on the recycled aggregate concrete is highly recommended to indicate the strength characteristics of recycled aggregates for application in structural concrete. Although by decreasing the water/cement ratio, recycled aggregate can achieve high strength concrete. But the workability will be very low. Therefore, it is recommended that adding admixtures such as super plasticizer and silica fume into the mixing so that the workability will be improved.
- More investigations and laboratory tests should be done on the strength characteristics and size, shape, texture of recycled aggregate. It is recommended that testing can be done on concrete slabs, beams and walls. Some mechanical properties such as creep, shrinkage and abrasion can also be performed. More trials with different particle sizes of recycled aggregate and percentage of replacement of recycled aggregate are recommended to get different outcomes and higher strength characteristics in the recycled aggregate concrete.
- Converting waste material into useful value material is having great importance. The depleting sources of natural aggregate and disposal of demolition waste has prompted the researchers to think of Recycled Coarse Aggregate (RCA). It is well established that building demolition waste concrete can be used as coarse aggregate in structural concrete after proper processing.

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