DEMOLISHED BUILDING WASTE WITH CRUSHED CONCRERE IS REPLACED FROM COARSE AGGREGATS

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ABSTRACT: Construction isa major part contribute to development of country with urban as well as rural community, construction on large scale and regulary generated of demolition non-biodegradeable wastes which are just being dumped in landfills thatare not good for natue. Large construction generates large amount of harmfullwateswich requires a large area of land that is to ba used to dumpedof the watsewhich is very difficult to find. One of best suitable solution may be to reuse,recyclsand reduce the demolished waste which help to protect the environment as well as it would handle the construction wastes. Consequently, To reduce the quantity of demolition wastes, the project would use the wastage of crushed concrete from the lathe wastes of crushed concrete replacing by coarser aggregates of (20, 30, and 40)% , about 4% of coarse aggregates as crushed namely lathe waste is used. The deltailed analysis of (DCCA) concrete in mould should be ready in (7days, 14 days and 28 days) of curing(hydration) and examination to be conduct on pre-cast concretespecimne.Like compressive strength, split tensile strength (split cylinder test), & flexural strength test of concrete. The experiment requires a specified garde of concrete such as M20.

Keywords– Ordinaryportland cement having 53 grade, Lathe wastes, Coarse and Fine aggregates, Crushed Concrete Agrregates (Demolished), hydration

I. INTRODUCTION

As the urbanisation developing very rapidly for a very short time, the specifyused for modern structure of buldingsand communications has consiquently risen. With the increment during the new-faced structure the importune of aggregates has also risen [1]. Since the natural aggregates used on a very large scale, it getting more intense day by day, thus it contributes the higher valueable development in the infrastructure area. Naturalaggregates can be reduced by usage of recycled aggregates as a reolacement material. By the use of this aggreagtes, many old buildings over their ages lmits. For the ecnomic growth and and new job oppotunitiescontruction in necessery. Creation of building waste resulting from natural as well as man-made disasters. Demolished concrete fritter away obtain following the destruction of the arrangement is a life form correctly process previous to the coarse aggregates of it be able to exist used in concrete production. Consequently, these process coarse aggregates utilize in the concrete in cast-off aggregate and concrete [4].

The building watse discharge is 5,500 tons per day Overall analyzation in India and
South Asia. According to Hindu also 23.86 million tonnwaste.In generated yearly inside India in 2007. It proved harmful to surroundings[5].
Owing to frequent employeofthe sources alike to sand and stoneisa primary trouble to modify the climatic and humiliating the earth and to meet by means of insist in future [6]...by the use of dismentelledconcrete waste in the appearance of cast-off aggregate concrete is viewable because an effort in the direction of preserving the natural resource and protect the environment and not wastefully equilibrium [7] [8]...

II. MATERIALS AND METHODS

Materials:-
Cement: Ordinary Portland Cement of 53grade.Grade cement is required to conform to BIS specification IS:12269-1987 with a prespecified strength after 28 days being a minimum of 53 MPa or 530 kg/sqcm.

Table-1 Properties of Cement are as :-

S. No.	Properties Of OPC 53 Grade of Cement	Output
1.	Specific gravity	3.17
2.	Standard consistency	33.86
3.	Finess test	1.68
4.	Initial setting time	30 mins
5.	Final setting time	9hrs.15 min.

Fine aggregate :-
Manufactured sand with impurity proof was used as fine aggregate. The accurate sp.gravity and fineness modulus is 2.45 and 2.87.
Coarse aggregate :-
Local obtainable andrandomly selected compressed stone is used as a coarse aggregate of 20mm sized used for the project.

Table-2 Shows Properties of DCC and Normal Aggregate are as under

Sr. No.	properties	DCCA	Normal coarse aggregate
1.	Specific gravity	2.407	2.703
2.	Impact value	28.307	13.457
3.	Water absorption	5.624	0.952
4.	Bulk density	2.591	0.729
5.	Crushing test	29.014	17.508
6.	Abrasion test	16.503	14.315
7.	Size	20mm	20mm

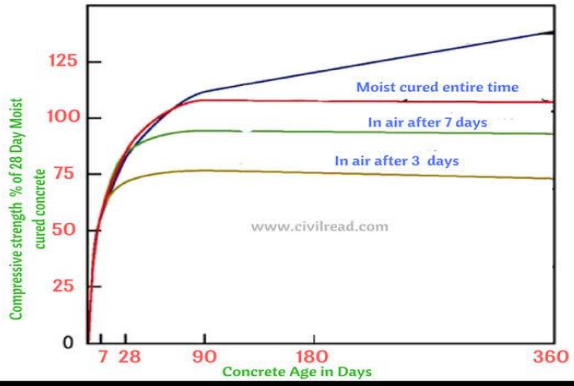
Water :-
Mixing and hydration process is used as fresh water resources. Preparing of concrete in the water cement ratio is W/C of 0.35.
Test specimens :-
Test specimens for this test requires of (150×150×150)mmconcrete cubes casting for Compressive strength having 150mm in dia.,
A cylinder of 300 mm length for split tensile test anda (150×150×700) mm beam requires for flexural strength.by using of different percentage demolished crushed coarsed aggregate (DCCA) of 200mm sized for M20 grade of concrete mix were cast and tested as per IS: 516 and 1199.
Curing of concrete :-
Casting of concrete subsequent to the completion of 24 hours mould resolve be detached and then hydrated through using potable water. The cast concrete cube, cylinder and beams is completely immersed in potable water for aperiod of 7, 14, 28 days. After the completion of curing it will be taken out and kept at room temperature in 24 hours after tested. Testing of hardened concrete are as :-
Test for compression
Test for flexure
Split cylinder test

III. RESULT AND DISCUSSION

Compressive Strength test Compressive strenght of concrete is depends on various factors such as W/C ratio, quality of cement, grade of cement, cement strenght, quality control during production of concrete, etc. The first step is topoured theconcrete paste inside the mould and compact&temper properly by hand inorder to reduce voids. Finish the top surface of the mould to achieve an even surface.The outside of these specimen. As well outer surface of specimen should be smooth.The load is applies gradually at a rate 140 kg/cm2/min.till the specimen fails. These specimens are tested by compression testing machine subsequent to 7 days curing, 14 days curing, 28 days after curing.

Table-3 Compressive Strength of concrete cubesare as

Grade of conc.	Curing in days	Comp.-Strenght Of Conc. 20% (DCC)	30%(DCC)	40% (DCC)
M20	7days	18 N/mm²	26.70 N/mm²	23.54 N/mm2	21.58 N/mm²
M20	14 days	24 N/mm²	38.65 N/mm²	38.20 N/mm2	31.36 N/mm²
M20	28 days	32 N/mm²	41.83 N/mm²	39.52 N/mm²	36.78 N/mm²



Concrete Curing time

Fig. shows the compressive strength vs concrete curing...
The compressive strength of concrete cubes comparative for partial replacement of (20, 30, 40) % DCC hardened cubes in numbers of curing of 7days, 14 days and 28 days status.

Flexural Strength ofBeam :-
Flexural strength also recognized as modulus of rupture or bends strength, or transverse rupture strenghtis a materialproperty,defined as the stress in a material just before to it yields flexure test. The modulus of crack is resolute by testing standard test in testing machines specimens of size (100 X 100 X 500) mm.

Table-4 Shows the Flexural Strength of concrete are as:-

Grade No. of Flexural Strength 20% 30% 40% indaysof concrete are as :-

M20	7 days	3.64 N/mm²	4.42 N/mm²	4.83 N/mm²	4.17 N/mm²
M20	14 days	4.91 N/mm²	8.69 N/mm²	7.72 N/mm²	7.26 N/mm²
M20	28 days	6.58 N/mm²	9.36 N/mm²	8.58 N/mm²	8.04 N/mm2

Flexural strength or modulus of rupture of concrete beams comparative for partial

Table 5 Split Strength of concrete cylinders

Grade	No. of days Curing	Split Tensile strength of concrete	20%(DCC)	30%(DCC)	40%(DCC)
M20	7 days	2.16 N/mm²	2.98 N/mm²	2.56 N/mm²	2.60 N/mm²
	14 days	2.86 N/mm²	2.64 N/mm²	2.77 N/mm²	2.85 N/mm²
	28-days	3.43 N/mm²	3.71 N/mm²	3.53 N/mm²	3.18 N/mm²

the split tensile strength of concrete cylinders comparative for partial replacement of 20, 30, 40 % DCC hardened cylinders in numbers of curing (hydrations) 7, 14, 28-days status. Its maximum range of strength is analyzed the analytical reports.

RECCOMENDATION:-

The test result reccomnded 30% of DCC

IV. CONCLUSION

The uses of recycled aggregates from construction waste and demolition wastes is showing curable application in construction as an contradictory to innative aggregates. Recycled aggregates consists a comparitivelylower bulk density,but compressivestrenghtand impact values is much higher than innative (natural) with higher water absorption property as compared to natural aggregate. Atest study shows the relatively lower comressivestrenght of recycled aggregates as compared to natural aggregates concrete. However, these variations is not true for recycled agrregates it may be rise and fall dependent on the source from which the agrregates is extract or obtained.

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