

# Effect of replacement of fine aggregate to recycled fine aggregate and copper slag in luminous concrete

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## ABSTRACT:-

The present study reveals that the natural resources are being getting depleted down due to excessive and unnecessary use and the present development in the field of science made us to self reliable that depend upon the man made sources of light. Thus, Luminous concrete is very essential in order to save the electricity consumption. Luminous concrete is that concrete that allows the passage of light (sun light) through it. They reduce the energy consumptions and helps the tall sky scrappers building getting higher LEED (Leadership in energy and environmental design), GRIHA (Green rating for integrated habitat assesment), IGBC (Indian green building council) rating. Luminous concrete also gives an aesthetically pleasing surface . They are constructed by the help of cement, fine aggregate, coarse aggregate, water and a thousand of plastic optical fiber strands placed alternatively with the help of PBC board. But , none of the concrete material can be used until it satisfies all the properties as specified by Indian standards. In this paper , we deal with the experimental study of luminous concrete by partial replacement of fine aggregate with recycled aggregate and copper slag to increase the strength of luminous block and to reduce the cost involve in manufacturing of luminous concrete . The higher percentage of POF 4.8% reflect the more amount of light upto 31.25% , Here the percentage of POF is changed to 5% and 5.5% and fine aggregate is replaced by recycled fine aggregate and copper slag in 25 % , 35% , 45% and 55% by weight of the sand . The size of the coarse aggregate taken would be 10mm. We will select the fine aggregate passing through 2.36 mm sieve .We will perform the different strength parameters test on luminous block at the 7, 14 and 28 days. By replacement of copper slag and recycled aggregate as fine aggregate, we can reduce the digging of river and prevent the natural fine aggregate and also reduce the environmental pollution to produce by copper slag when it dispose in open atmosphere.

Keywords:- luminous concrete , plastic optical fiber , IGBC , Copper slag, Recycled aggregate etc.

## REFERENCES:-

1. Awadhesh kumar , Rahul Ahlawat, (2017) "Experimental study on Light Transmitting Concrete", *IJISSET-International Journal of Innovative Science* , vol 4 Issue 6.
2. Abdelmajeed Altloamat, Faesal Alatshan, Fidelis Mashirib and Mohamed Jadan (2016) "Experimental study of light-transmitting concrete" , *International journal of sustainable building technology and urban development*, PP.133-139 , vol-07. A.
3. M. Sangeetha, V. Nivetha, S. Jothish, R. Madhan Gopal, T. Sarathivelan, (2015) "USRD-International Journal for Scientific Research & Development" , Vol. 3, Issue 02

4. *karandikar, N. Virdhi, A. Deep (2015) "Translucent Concrete: Test of Compressive Strength and Transmittance" international Journal of Engering Research & Technology (IJERT) , vol-04 , Issues-07.*
5. *Prof. A.A. Momin , Dr. R.B. Kadiranaikar,(2013) "Study on Light Transmittance of Concrete Using Optical Fibers and Glass Rods", IOSR Journal of Mechanical and Civil Engineering, PP. 67-72.*
6. *Prof. A.A. Momin , Dr. R.B. Kadiranaikar,(2013) "Study on Light Transmittance of Concrete Using Optical Fibers and Glass Rods", IOSR Journal of Mechanical and Civil Engineering, PP. 67-72.*