

Study of the Relation between Properties of Cellular Light Weight Concrete

Raj Vardhan Singh Chandel¹ Rashmi Sakale²

¹M.Tech Scholar ²Professor

^{1,2}Truba Institute of Engineering & Information Technology

Abstract— Cellular light weight concrete (CLWC) is a type of light weight concrete which is made up of fly ash, cement and foaming agent, it is generally used as wall panelling material, study shows that CLWC blocks are very good in fire resistance, thermal insulation, sound absorption and also thermal expansion is very less. This paper shows the relation between the properties of CLWC i.e. water absorption v/s dry density, compressive strength v/s water absorption, compressive strength v/s dry density.

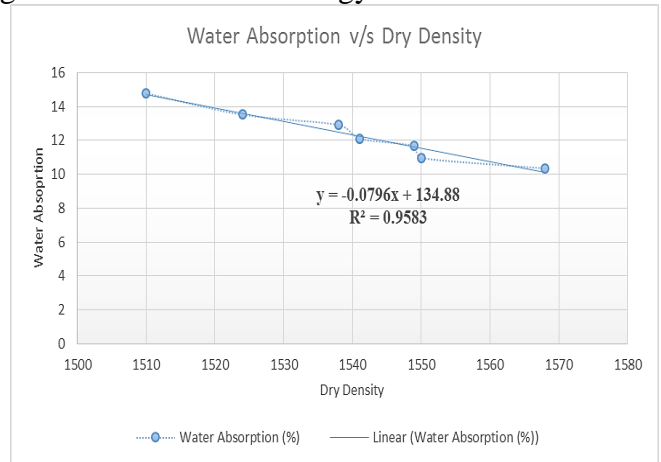
Key words: Cellular Light Weight Concrete, Cement, Fly ash, compressive strength, water absorption, dry density

I. INTRODUCTION

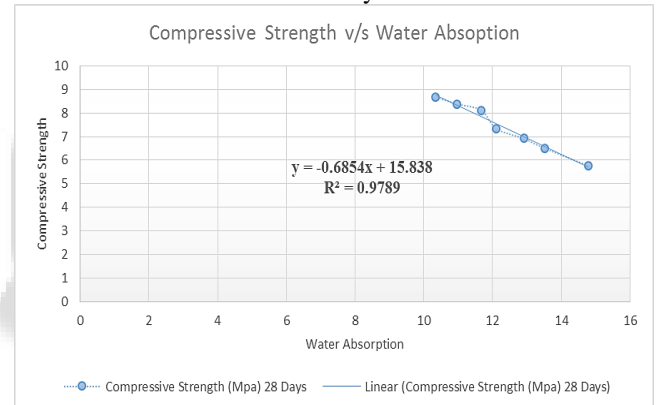
When light weight cellular concrete blocks are casted with 65% of Fly ash and 35% of cement with foam content 1.5% of total weight and to increase its strength sand and quarry dust is added in its composition which replace fly ash upto 30% at an interval of 5%, it results that compressive strength and dry density of the CLWC blocks increases with the increase in content of quarry fines and also water absorption decreases with the same. CLWC blocks is casted with fly ash, cement, foaming agent and with quarry fines in 15*15*15 cm cube and also curing is done by sprinkle the water on cubes thrice in a day. Relation between properties of CLWC shows that how these properties is interrelated to each other and also it gives equation to find other.

II. RELATION BETWEEN RESULTS

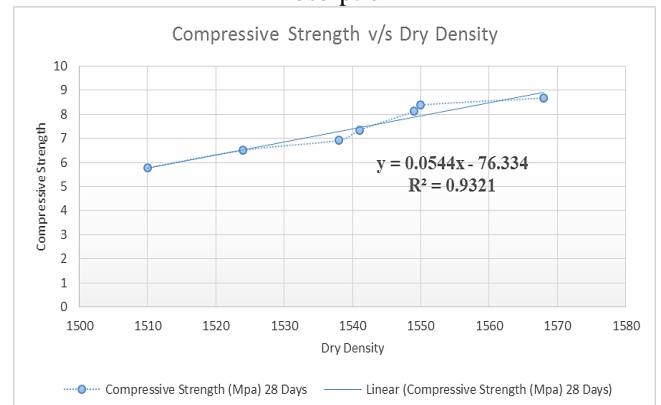
Graph 1 shows a relation between water absorption and dry density and graph shows water absorption of CLWC is decreased with increase in the density, it is also observed that a liner relation is drawn between water absorption and dry density by the help of graph a linear equation is derived i.e. $y = -0.0796x + 134.88$ with curve fitting 0.9583, here y = water absorption and x = dry density. Graph 2 shows a relation between water absorption and compressive strength and graph shows compressive strength of CLWC is decreased with increase in the water absorption, it is also observed that a liner relation is drawn between water absorption and compressive strength by the help of graph a linear equation is derived i.e. $y = 0.06854x + 15.838$ with curve fitting 0.9789, here y = compressive strength and x = water absorption. Graph 3 shows a relation between water dry density and compressive strength and graph shows compressive strength of CLWC is increased with increase in the dry density, it is also observed that a liner relation is drawn between dry density and compressive strength by the help of graph a linear equation is derived i.e. $y = 0.0544x + 0.9321$ with curve fitting 0.9321, here y = compressive strength and x = dry density.



Graph 1: Relation between Water Absorption and Dry Density



Graph 2: Relation between Compressive Strength and Water Absorption



Graph 3: Relation between Compressive Strength and Dry Density

III. CONCLUSION

Relation Between Water Absorption And Dry Density, Water Absorption Of CLWC Is Decreased With Increase In The Density And A Linear Relation Is Drawn By Between Water Absorption And Dry Density Which Gives Equation $Y = -0.0796x + 134.88$ With Curve Fitting 0.9583, Here Y = Water

Absorption And X= Dry Density. Relation Between Water Absorption And Compressive Strength And Graph Shows Compressive Strength Of CLWC Is Decreased With Increase In The Water Absorption And A Linear Relation Is Drawn By Between Water Absorption And Compressive Strength Which Gives Equation $Y = 0.06854x + 15.838$ With Curve Fitting 0.9789, Here Y = Compressive Strength And X = Water Absorption. A Relation Between Water Dry Density And Compressive Strength And Graph Shows Compressive Strength Of CLWC Is Increased With Increase In The Dry Density And A Linear Relation Is Drawn By Between Water Compressive Strength And Dry Density Which Gives Equation $Y = 0.0544x + 0.9321$ With Curve Fitting 0.9321, Here Y = Compressive Strength And X = Dry Density.

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