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Experimental Investigation on Strength and Durability Properties of RC Concrete Slabs

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Abstract: India depends on Thermal Power as its main source and there is increase in power requirement every year. Due to increase in the growth of industrial sectors the power requirement of the country is rapidly increasing. Present scenario of our country shows 75 % of country's total installed power generation is thermal of which coal-based generation is 90%. In India around 160 MT fly is produced and only 40% of that is being utilized in different sectors. Balance fly ash is being disposed over land. Currently around 65000 acres of land is occupied by fly ash. It needs one acre of land for ash disposal to produce 1MW electricity from coal. Fly ash and pond ash utilization helps to reduce the consumption of natural resources. Lots of research has been carried out for effective utilization of fly ash in construction industries due to its fine particles and Pozzolonic properties. But little literature is available on pond ash utilization. Pond ash being coarser and less Pozzolonic than fly ash can be used as fine aggregates in concrete by partial replacement of sand.

This paper represents about the experimental investigation of the possibility of using pond ash in varying percentages as fine aggregate substitute in cement concrete. M30 grade concrete was made using pond ash (PA) and Portland pozzolona cement (PPC). Fine Aggregate replaced with pond ash varied as 10%, 20%, 30% and 40%. An attempt has been made to investigate the characteristics of pond ash concrete for various parameters like its compressive strength, flexural strength and durability properties. For this purpose slab elements were cast to test for their flexural behavior.

Key words : P.A - Pond Ash, PA20- 20 % pond ash, PA30- 30 % pond ash,fck - Characteristic compressive strength, HYSD - High yield strength deformed bars, G – Specific Gravity.

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