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Experimental Investigation on Self Compacting Concrete using Light Weight Aggregate

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Abstract : Light Weight Self Compacting Concrete (LWSCC) combines the advantages of being light in weight and easily flowable in elements with congested reinforcement. In this project Self Compacting Concrete (SCC) is made in which LECA (Light Expanded Clay Aggregate) is used to make the concrete light in weight leading to Light Weight Self Compacting Concrete (LWSCC). Fine aggregate in Self Compacting Concrete (SCC) is replaced with LECA by 0%, 5%, 10% and 15% by volume of fine aggregate. Mix design is made as per ENFARC guidelines and checked for workability criteria. The compressive strength for 5% replacement increased when compared to that of 0% replacement due to that the spherical shape of LECA aggregates contributed to better self compaction and hence higher strength. For further replacement there was a decline in strength due to weaker nature and unavailability of water for hydration due to pronounced water absorption characteristics of LECA. Hence 5% is considered as optimum in replacing fine aggregate in self compacting concrete by Light Expanded Clay Aggregate (LECA).

Keywords : light weight concrete; self compacting concrete; light weight self compacting concrete; LECA.

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