PRODUCTION OF SELF COMPACTING CONCRETE USING RICE HUSK ASH

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DECLARATION

I hereby certify that this dissertation does not incorporate any material without acknowledgement and material previously submitted for a degree or diploma in any university to the best of my knowledge and I believe it does not contain any material previously published, written or orally communicated by another person except where due reference is made in the text.

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This is to certify that this thesis submitted by Sangaralingam Jeevasangar is a record of the candidate's own work carried out by him under my supervision. The matter embodied in this thesis is original and has not been submitted for the award of any other degree.

UOM Verified Signature

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ABSTRACT

Self compacting concrete flows into formwork and around obstructions under its own weight to fill it completely and self compact (without any need for vibration), without any segregation and blocking. The elimination of the need for compaction leads to better quality concrete and substantial improvement of working conditions. The current study revolves around self compacting concrete made out of locally available material.

The objectives of this research were obtaining proper mix designs for grade 50 concrete using rice husk ash and evaluating the fresh and the hardened concrete properties of the mix designs.

In the first stage, ten different self compacting concrete mix compositions were made by using ten percentage of rice husk ash with respect to total weight of cement and obtained mix designs to satisfy the consistency, workability, passing and filling ability. In the second stage, harden concrete properties were evaluated for the particular mix design.

In this dissertation, experimental details of several trial mixes and attempts taken to satisfy the fresh concrete properties for grade-50 self compacting concrete are presented. The attempts taken to investigate the hardened concrete properties have shown for one trial mix. Cost analysis showed that the cost of ingredients of SCC-02 self compacting concrete mix with rice husk ash is 22.70% more than the SCC-00 self compacting concrete mix with fly ash.

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LIST OF ABBREVIATIONS

BS	:	British Standard
FA	:	Fly Ash
HRWR	:	High Range Water Reducing Admixture
LFA	:	Lignite Fly Ash
OPC	:	Ordinary Portland Cement
RHA	:	Rice Husk Ash
SCC	:	Self Compacting Concrete
SF1	:	Slump Flow - Class-1
SF2	:	Slump Flow - Class-2
SF3	:	Slump Flow - Class-3
SLS	:	Sri Lankan Standard
SP	:	Super Plasticizers
T-LFA	:	Treated Lignite Fly Ash
U-LFA	:	Untreated Lignite Fly Ash
VMA	:	Viscosity Modifying Admixtures
VF1	:	Viscosity Flow - Class-1
VF2	:	Viscosity Flow - Class-2
VS1	:	Viscosity - Class-1
VS2	:	Viscosity - Class-2
W/C	:	Water to Cement Ratio
W/P	:	Water to Powder Ratio