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CANDIDATE'S DECLARATION

I here by declare that the Project entitles " **Compressive Strength of Concrete with Rice Husk Ash as Partial Replacement of Ordinary Portland Cement** " in partial fulfilment of the requirements for the awaded of the degree of " **Master of Technology** " in civil engineering with specialization in " Structural Engineering " submitted in the department of Civil Engineering, **Delhi Technological University**, Delhi, is an authentic record of my own work carried out from August 2012 to July 2013, under the supervision of Prof. Awadhesh Kumar and has not been submitted to any other university or any institute for the awarded of Degree/Diploma.

Sandeep Singh

2K11/STE/14

Date: 30-07-2013

Certified that the above statement made by the student is correct to the best of my knowledge and belief.

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ABSTRACT

The rice husk ash (RHA) is a pozzolanic material that can be blended with the Portland cement in concrete to obtain a better performance of normal concrete. This research proclaims an experimental investigation on utilization of RHA in the concrete as it is a by-product of Rice mill. The results of four different replacements percentage of RHA in concrete (20%, 25%, 30% and 35%) by weight of cement were compared with the concrete that does not contain RHA. The replacement of cement by RHA was made by weight, because the RHA presents less specific gravity than the Portland cement. Optimum strength was achieved at 20% RHA replacement.

Ordinary Portland Cement (OPC) of 53 grade Ultra Tech conforming to IS: 12269:1987 obtain from single source is used in this investigation and. Local river sand is to be used as fine aggregate and also determined its specific gravity and fineness.

It is now evident from the literature that RHA is used as partial replacement for cement in concrete and mortar in some developed countries. It can be prove to be economical for the construction industry in the fast growing countries. It has also been proved to reduce the heat of hydration in mass concrete. RHA cement paste also has a better resistance to acid environment than the comparable OPC concrete. The properties of RHA vary with locality and depend very much on the manufacturing processes, including the burning process.

Similar to silica fume, rice husk ash (RHA) also contains about 90% silica by mass. The amorphous silica contained in rice husk ash (RHA) can react with $Ca(OH)_2$ to form one kind of C-S-H gel. The additional C-S-H gel looks like floc in morphology, with a porous structure and large specific surface.

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