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EFFECT OF RANDOMLY ORIENTED HAIR FIBER ON MECHANICAL PROPERTIES OF FLY-ASH BASED HOLLOW BLOCKS.

The main aim of the work is to investigate the effect of mixing of hair fiber on mechanical properties of fly ash. The hair fiber were mixed in ratios of 0.00, 1.00, 1.50, 2.00 & 2.50% respectively. As the production of 1 Ton of Portland cement produces 1 Ton of carbon dioxide thus causing environmental threat to atmosphere. This is causing depletion of ozone layer situated at a height of 25 kilo meter from surface of earth. Therefore the production of cement is under critical review. The scientists and civil engineers are playing their role to contribute their efforts in solving this problem by reducing the effects of negative consequences of cement production on atmosphere. A number of studies have been carried out to determine the effect on the physical properties of soil and fly ash with and without Lime. However, very few studies have been done to investigate the effect of randomly oriented hair fiber on fly ash based Hollow block. In this paper, results of an experimental study have been presented to determine the effect of randomly oriented hair fiber on mechanical properties of fly ash based hollow blocks.

The hollow blocks were tested in compression testing machine at 28 days. The loads and Corresponding deformations were measure during the test. It was concluded that at 0 % of hair fibers, the compressive strength was found 21.33 Kg/cm². The strain for 0 % was 0.00160000 while the poison ratio was 0.159. As the percentage of hair fiber was increased up to 0.50 %, the compressive strength values were found enhanced. The compressive strength was increased to 27.58 Kg/cm². Similarly the strain values increased from 0.00160000 to 0.00253333 and the poison ratio to 0.161. Similar results were obtained as the content of hair was increased. The strain values were found increased with an increase content of hair in blocks. Similarly values of compressive strength and poison ratio also increased. The compressive strength of blocks with 1.00 %, 1.50%, 2.00 % and 2.50 % were observed as 36.33 Kg/cm² ,52.50 Kg/cm² ,75.56 Kg/cm², and 21.50 Kg/cm² respectively. Similarly the strain values constantly increased with increasing content of hair in moulds. It was observed that increasing hair content beyond 1.50 %, the compressive strength values decreased at higher rate, while the strain values and poison ratio were also found to reduce. The blocks with 2.00 % content of hair showed less compressive strength values of 21.50 Kg/cm², lowest strain values of 0.00197798 while value of poison ratio reduced to 0.164 compared to standard blocks.

Author: Ms KHAN, Rukhsar (UET Peshawar)

Co-authors: Mr AHMED, Ibrar (UET Taxila); Mr AFNAN, Muhammad (UET Peshawar)

Presenters: Ms KHAN, Rukhsar (UET Peshawar); Mr AHMED, Ibrar (UET Taxila)

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