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Strengthening of Nano Concrete Beam with GFRP Wrapping

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Abstract : India is a fastest developing country, due to the increase in the growth of industry, the production of goods has been increased and at the same time the waste products coming out of these industries has considerably increased. From the study it was noted that disposal of these waste material has been a major problem and has created many environmental issues. One of such material is fly ash a product from thermal power plant. In this project, flyash is made to nano size with the help of ball grinding mill. Nano fly ash is used as a replacement of cement. Ordinary Portland cement is replaced with 0%, 10%, 20%, 30%, 40% and 50% by nano fly ash M20 grade of concrete is used for the study. FRP application is a very effective way to repair and strengthen the structures that have become structurally weak over their life span. Hence the flexural behaviour of Nano concrete beams strengthened using GFRP sheets are carried out in this study. The difference in the flexural behaviour of wrapped nano concrete beams and unwrapped nano concrete beams are investigated. It was found that 30 % replacement of cement with nanoflyash gave an optimum value for both wrapped and unwrapped specimen.

Key words : nanoflyash, flexural strength, GFRP sheet, wrapping.

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