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STRUCTURAL BEHAVIOUR OF SELF CURING SELF COMPACTING CONCRETE

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Abstract: Concrete strength is interlinked with many factors like mixing, placing and curing. While mixing and placing are taken care by adopting new methodologies in construction industry like Self Compacting Concrete (SCC), curing of concrete can be taken care using internal curing techniques. During hydration there is a need to maintain the relative humidity of around 100%. Decrease in relative humidity will cause self desiccation or chemical shrinkage at the micro level. To prevent the above problem, it is advantageous to make available embedded water for curing which can be done with the addition of effective self curing chemicals.

The present study concentrated on developing self curing self compacting concrete and the structural behaviour of this special concrete. The parameters considered in the work include grade of concrete (Mix A-60MPa, Mix B-40 MPa), Type of curing regime (Wet curing, self curing with PEG 4000, No curing) and type of reinforced section (under reinforced and over reinforced beams). Beams of size 1800 mm × 200 mm × 100 mm were cast and tested under flexural loading and the Moment-Curvature relationships were developed from the Load-Deflection profiles obtained based on testing 100 x 100 x 200mm prism specimens with similar grades of concrete.

It was observed from the results that there is a significant amount of change in the Moment-Curvature relationships between self cured specimens and specimens not subjected to any curing. The ultimate moment values of self cured beams are on par with water cured specimens. It was also observed that use of optimum dosages of self curing agents has significantly improved the structural behavior of SCC.

Keywords*: Self Compacting Concrete, Self curing chemical, flexural behaviour,Moment-Curvature*

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