

Studies on Strength, Durability and Microstructural Characteristics of Self-Healing Efficiency of Fibre Reinforced Sustainable Self Curing Concrete

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ABSTRACT

Green Building becomes one of the immediate solutions to reduce the global warming and climatic change. For that, we need buildings which have long lifetime and less maintenance because reconstruction and maintenance of the buildings are very costly and high energy consuming. One of the solutions for that is self-healing concrete (Bacterial Concrete). Bacterial self-healing is an innovative technology allowing repairing open micro-cracks in concrete by CaCO₃ precipitation. This bio-technology improves the durability of the structure. Fibre Reinforced concrete is another technique which helps to increase the flexural strength of the concrete. Its main usage comes after the initial cracking of the concrete. These fibres present in concrete will not let the cracks to propagate more so we can attend the failure of the structure at early stages. The next one is Self-curing concrete, as we all know Construction is one of the industries which consume lots of water for its process. On which one of the consuming processes is curing and even using that much of water we cannot assure that the curing is perfectly processed. This leads to self-curing technology, which will retain the water in the concrete during the hardening process. This project deals with the collaboration of multiple hot topics in construction industry right now. We are using the advantage of this self-healing, fibre reinforced and self-curing technology to give durable concrete with low maintenance.

Keywords: *Bacteria, Durable, Fibre reinforce, Self-curing, Self-healing*