

Waste Tire Application in Concrete Structures

Title	Waste Tire Application in Concrete Structures
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Abstract	<p>The waste tire is produced more than 10 million tons every year in the world. This problem needs serious treatment to eliminate the waste tires. This work is aimed to recycle the waste tire in concrete as a reinforcement. The contribution of the waste tires in flexural strength capacity of concrete is investigated by using experimental work and numerical simulation. Since material is quite non-homogenous compared to the pure concrete, we use six concrete beam specimens with dimension 150 mm x 150 mm x 1000 mm to get better fitting results. One specimen is non reinforced concrete beam and five specimens are waste tires reinforced concrete beam. For each of the five specimen, the waste tire reinforcement is tensioned with 0%, 17%, 25%, 40% and 60% strain before casting the concrete. The flexural strength tests are conducted after 28 days concrete ages under three point loadings. After the test, we observe that the waste tire reinforcement together with pre-stress contribute significantly on the flexural strength of the concrete beam as predicted. Finally, to support the test, finite element analysis is performed as well in this work and compared with the experimental results.</p>
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