

Concrete Performance Evaluation of Coarse Aggregate Replacement by Civil Construction Waste

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Abstract : The construction sector is considered a major generator of environmental impacts due to the high consumption of natural resources and waste generation. Thus, this article aims to evaluate the performance of a concrete produced by the partial and total replacement of natural coarse aggregate by recycled coarse aggregate, derived from the concrete residue of buildings and demolitions. The study was made by comparing the compressive strength and absorption of three different concrete traces, keeping the water/cement factor of 0.60 and changing only the proportions of recycled coarse aggregate between 0%, 50% and 100%. Traces 50% and 100% obtained good results by comparing the actual specific mass, because the material used is lighter to the natural coarse aggregate. It was concluded that the concrete produced with recycled aggregates, even with inferior results, can be used where it is not needed a structural function, giving an adequate destination to the construction and demolition waste and consequently reducing the extraction and consumption of natural resources.

Keywords : green concrete, recycled aggregate, recycling, sustainable development

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