Said Kenai, J Civil Environ Eng 2015, 5:5
http://dx.doi.org/10.4172/2165-784X.C1.002

OMICS International
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World Congress and Exhibition on
Construction & Steel Structure
November 16-18, 2015 Dubai, UAE

Performance of ordinary and self compacting concrete using recycled concrete aggregates

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Construction industry consumes a lot of mineral resources and is the most energy intensive sector. In addition, it is responsible for a high percentage of green house gas emissions and hence has large environmental impact. The use of recycled concrete aggregates from rubble and demolition waste in combination with cementitious additions could contribute to an environment friendly construction by reducing CO_2 emissions and reducing the consumption of natural resources. In this paper, the performance at the fresh and hardened state of an eco-concrete (ordinary and self compacting) made of recycled concrete aggregates and either natural pouzzolana or granulated blast furnace slag is discussed. Natural aggregates were either partially or fully substituted by recycled aggregates and cement was partially substituted by either natural pouzzolana or slag. The results showed that an ordinary recycled aggregates concrete with comparable mechanical properties and durability to natural aggregates concrete could be produced. The use of recycled aggregates gives a self compacting concrete with comparable rheological properties to that of control concrete. The substitution of cement by natural pouzzolana decreases the workability of the control concrete whereas the use of slag improves it. However, an improvement has been noted for SCC made with recycled concrete aggregates.

Biography

Said Kenai is a Professor and Chairman of the Civil Engineering Research Laboratory at the University of Bilda, Algeria. He obtained his PhD from Leeds University (England) in 1988. His main interests include building materials, concrete technology, cement replacement materials, durability, non destructive testing and repair of concrete structures. He has published more than 50 papers in international journals and is serving as an Editorial Board Member of many reputed journals. He is also member of RILEM TC-ISC technical committee.

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