

Energy and Environment Pillar

<http://dx.doi.org/10.5339/qfarf.2013.EEO-03>

Constructing a green Qatar: A case study

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The rapidly developing infrastructure in Qatar requires an increasing supply of quality construction materials. Qatar has limited resources of quality natural aggregate and has to import coarse aggregate for use in asphalt and concrete applications. At the same time, vast quantities of alternative and recycled aggregates are available with limited use in the construction industry. The innovative use of recycled aggregate in construction is to be demonstrated to further support the construction of a sustainable and green Qatar. This leading building trial demonstrates the use of new aggregate materials in three one-story buildings. Alternative materials are sourced from recycled aggregate such as excavation waste (EW), construction & demolition waste (CDW), secondary aggregate of incinerator bottom ash (IBA) from municipal waste, and crushed rock fines (CRF) as crushed limestone rock for use in structural concrete and concrete blocks. Construction specifications need to consider locally available materials and exposure conditions in the Middle East. This leading trial is to provide practical evidence on the performance of local materials when exposed to actual weather conditions in Qatar. The performance of the newly developed concrete products made with alternative aggregates will be monitored for one year. The findings will be used for updating the Qatar Construction Specifications (QCS 2010).