

Use of Recycled Brick Masonry Aggregate (RBMA) and Recycled Brick Masonry Aggregate Concrete (RBMAC)
in Sustainable Construction

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Use of recycled aggregates in portland cement concrete construction can offer benefits associated with both economy and sustainability. Testing performed to date indicates that RBMA can be used as a 100% replacement for conventional coarse aggregate in concrete that exhibits acceptable mechanical properties for use in structural and pavement elements, including satisfactory performance in some durability tests.

RBMAC is currently not used in any type of construction in the United States. However, use of RBMAC could become a viable construction strategy as sustainable building practices become the norm. Rating systems such as LEED offer points for reuse of building materials (particularly on-site) and use of recycled materials. If renovations at an existing facility call for the demolition of existing brick masonry constructions, the rubble could be included as RBMA in new concrete pavement, sidewalks, or curb and gutter. Other potential uses for RBMAC could include those in the precast concrete industry, particularly in architectural precast concrete applications. In addition to providing acceptable strength and economy, the color of RBMA could be an attractive component of architectural precast concrete panels or other façade components.

This paper explores the feasibility of use of RBMAC in several types of sustainable construction initiatives, based upon the findings of previous work with RBMAC produced from construction and demolition waste from a case study site. Guidance for obtaining and using RBMA is presented, along with a summary of material properties of RBMAC that will be useful to construction professionals.