Guidance on Reusing End-of-Life Concrete Blocks

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Sustainable Masonry

Modern concrete buildings usually reach the end of their useful life when they can no longer be repurposed, rather than due to material failure. As such, their constituent parts may be reclaimed.

Recycled concrete products are known as Recycled Concrete Aggregate (RCA). This is a specific subset of recycled aggregates, which must have a masonry content of no more than five per cent. The concrete industry makes use of industrial ecology to produce modern concrete this way due to its non-reactive properties. Concrete components can be recycled, and concrete itself can be reused.

Recycled concrete can be reused as aggregate and has been satisfactorily incorporated in granular sub-bases, soil-cement and new concrete. Around 75-80% of recycled aggregates are used in sub-base and fill, including for road construction and airfield pavements.

- Recycled concrete can be used as aggregate in new concrete, especially coarse elements. When doing so, keep in mind:

- Recycled concrete usually has higher absorption and lower density than natural aggregate, which can lead to slightly more drying shrinkage and creep in the final product, especially if more recycled fine aggregate is used.

- The chloride content in recycled aggregate may be problematic for reinforced concrete.

The alkali content and type of aggregate may be unknown, which could increase the risk of alkali-silica reaction if mixed with unsuitable materials.

At the end of their life, concrete blocks are demolished, segregated and crushed. They can then be reused in concrete block production or, more likely, as aggregate without added cement, such as in sub-base and fill for road and airfield construction.

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