

Autoclaved Aerated Concrete (AAC) in Leadership in Energy & Environmental Design (LEED™)

Autoclaved Aerated Concrete (AAC) is an environmentally friendly building material that is used to save energy and enhance the quality of the built environment. AAC has wide usage in Europe, be it for loadbearing, non-loadbearing, interior, exterior and even below grade wall use. Its use has expanded over the past decades to Asia and other markets across the globe.

The environmentally friendly attributes of AAC provide distinct advantages to building designs when it is used to address “green” or sustainable building concerns. Many of these beneficial attributes are recognized by the LEED™ Green Building Rating System 2.0, which is being used by architects and designers to achieve the environmental benefits and advantages promulgated by the U.S. Green Building Council (USGBC). State and local governments are moving towards requiring that government buildings reduce energy use and implement “green” construction practices. Both New York and Oregon provide tax credits for the construction of sustainable buildings.



*Stoneybrook AAC Dorms
Phase I and II*

As a masonry product, AAC can account for various credit points of the total 60 points detailed in the 2.0 version of LEED™. The most common points are found in the following sections of the LEED guidelines:

Energy Credit 1 – Optimize Energy Performance: This energy performance credit is awarded when energy cost savings are realized compared to a base building that simply meets the requirements of ASHRAE/ESNA 90.1-1999 code. A total of one to ten points are awarded for energy cost savings of 15% - 60% for new buildings and 5% to 50% for existing buildings. AAC may help save energy with both new and renovated constructions. The high R value of AAC and its inherent thermal mass, provided for in most states’ energy codes, typically adds additional beneficial energy considerations, as opposed to “non-mass” or frame building material systems.

Materials Credit 1 – Building Reuse: The intent of the facility reuse credit is to create a rationale for utilizing as much of the original structure as possible within the confines of the new design or intended use. AAC structures are excellent candidates for this credit due to the generations of service life AAC masonry affords to the performance of the building skin or shell. This credit is valued at one point if 75% of the existing AAC building shell or structure remains, and two points if 100% of the AAC masonry shell is utilized.

Materials Credit 2 – Construction Waste Management: This provision is sensitive to the growing scarcity of landfills. Simply put, less construction waste generated following site construction earns more rather than less points. One point is earned toward the design if 50% of the construction waste is recycled, and two points are earned if 75% of the residual site construction waste is recycled. AAC has the ability to be 100% recycled, either on site as drainable processed fill, or brought off-site to be reprocessed as consumer products such as “oil-dry”, composting aggregate or kitty litter. AAC may also be given new life as recycled wall components. The AAC site construction system generates approximately 1% material waste.

Materials Credit 4 – Recycled Content: AAC may utilize post consumer aggregates such as fly-ash, mine tailings, foundry sand and other graded aggregate sources (although sand and fly ash are most common). Aggregates are processed in a “ball-mill” where they are ground into a fine powder similar to portland cement. AAC also reclaims 100% of all material waste generated during the manufacturing process. Therefore, there isn’t any immediate post manufacturing waste to address. Typically, any waste generated in an AAC plant stems from production samples used in product testing. This credit earns one or two points depending on product cost and percentage of recycled content. Although AAC does not conform exclusively to the guidelines of this section, the AAC manufacturing and delivery process warrants a two point rating.

Material Credit 5 – Local/Regional Materials: Products manufactured within 500 miles of the site are awarded one point if the raw materials for manufacture also are harvested, recovered and extracted within 500 miles of the site location.

The intent of the LEED program is not that buildings be designed to “rack-up” points. Rather, it is intended to further foster good building design. AAC can help achieve both these aspects, which are desirable to building owners and occupants alike.

The LEED 2.0 rating system, and a draft of LEED version 2.1, are available for download on the USGBC’s website at www.usgbc.org.

For specific questions regarding AAC and IMI Certified AAC craftworkers, call 1-866-IMI-4AAC.

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