

Continued Development and Outreach for the Athena Impact Estimator for Buildings

The Impact Estimator for Buildings is a free software tool provided by the nonprofit Athena Institute to help architects and engineers reduce the environmental footprint of construction. The Impact Estimator for Buildings performs life-cycle assessment (LCA) for buildings in a simplified and streamlined approach that makes LCA accessible to non-experts.

Background

LCA is the analytical technique for measuring the environmental impact of a product or process and has long been used in various industries to inform sustainability business decisions. However, its uptake in the construction sector has been slow. This is a missed opportunity to reduce the “embodied” environmental impacts of new construction, that is, the upstream impacts due to materials manufacturing and construction activities. Building designers need LCA in order to appreciate the environmental benefits of material substitution (for example, in favor of low-carbon options), material optimization, building retrofit in place of new construction, and other undervalued sustainable design measures.

Objective

This work will expand capacity and accessibility of the Impact Estimator for Buildings software tool. This work will additionally strengthen market pull for LCA.



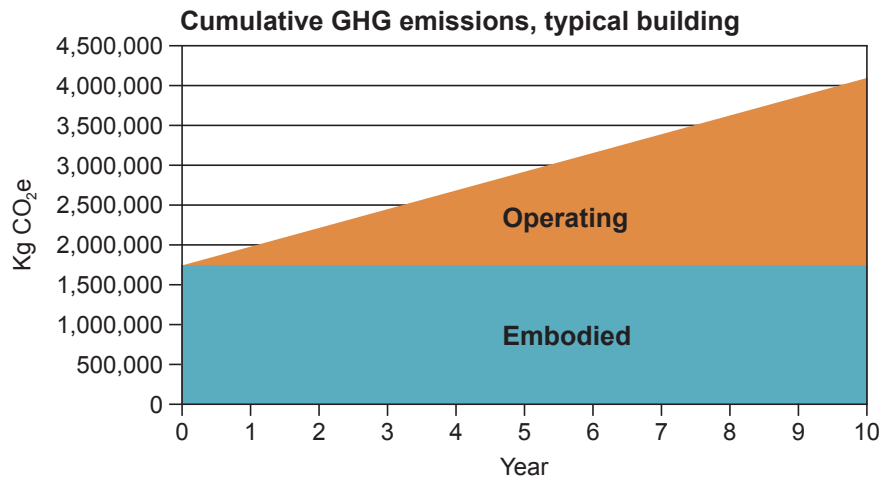
A wood roof structure for Raleigh–Durham Airport Terminal 2 resulted from the use of the Athena Impact Estimator for Buildings LCA software tool in determining which design option had the least environmental footprint. Photo: Arup.

Approach

Technical development tasks include improving functionality of the Impact Estimator for Buildings software, updating the underlying databases, web-enabling the tool, linking the tool to other building design software packages, and improving how the tool reports results. Market outreach tasks include creating the infrastructure for LCA performance targets, assisting green building programs such as LEED in their LCA incentives, and developing LCA educational vehicles.

Expected Outcomes

This work will increase the number of architects and engineers who use LCA in the design of commercial, institutional, and multifamily buildings. This will lead to a reduced environmental footprint in new construction.



LCA in building design tackles the embodied environmental impacts due to construction, which are large and immediate and yet usually overlooked. This example shows the cumulative carbon footprint of a typical mid-rise building over its first 10 years. Source: Athena Institute data.

Timeline

This program of work is a substantial acceleration of ongoing technical development and outreach for the Impact Estimator for Buildings. Work to begin September 2016, and we anticipate completion of the “next generation” Impact Estimator for Buildings tool and supportive outreach activities by December 2020.

Cooperators

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