



With Athena's proven LCA tools, determining the environmental impact of your project is no longer a guess. It's a certainty.

## LCA strengthens your sustainable design toolkit.



A building has an environmental footprint long before the lights go on or the energy meters start counting. Some design measures attempt to address embodied impacts but these are educated guesses at best. What's missing: actual data on the environmental impacts of materials and construction processes. The Athena Institute specializes in accurate data and targeted tools, helping design professionals make informed decisions.

Life cycle assessment (LCA) results on embodied impacts are the basis for achieving sustainability goals and they influence decisions about materials. Use LCA during design to measure the real impact of choices in materials and strategies on climate change, pollution, resource depletion and waste. LCA quantifies the holistic environmental story about the building, at scale. LCA accommodates trade-offs between operating and embodied impacts, and between high-impact and low-impact materials.



LCA brings transparency and validation to sustainable design choices by measuring performance instead of relying on conventional wisdom. It strengthens sustainable design practices with credibility. And now it earns meaningful points in LEED® and Green Globes® as green programs shift to performance metrics.



## We've got a free LCA tool to make it easy for you.

LCA is the science behind true environmental footprinting. In order to make LCA accessible for architects and engineers, the Athena Institute provides a quick, easy and intuitive LCA software tool specifically for design professionals: the **Impact Estimator for Buildings**.

Thousands of sustainability-focused designers and academics have been trusting our tools since 2002. Our LCA methods are always up-to-date, and our life cycle data on North American construction materials and processes is the most rigorous, complete, reliable and regionally-specific available.

Accommodating multiple comparisons at once, the software allows users to change the design, substitute materials, and make side-by-side comparisons for any one or all of the environmental impact indicators. It also lets users compare similar projects with different floor areas on a unit floor area basis.

The Impact Estimator has the complex life cycle databases and methodology built right into the program, so users need only address inputs about the physical nature of the building. A bill of materials can be imported from any CAD program, or users can let the software calculate building material quantities based on general geometry and loading parameters.

To include operating energy in the LCA calculation, simply enter results from an energy simulation tool to compute the entire fuel cycle burdens, including pre-combustion effects.

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The Impact Estimator is the only designer-focused tool fully compliant with LCA provisions in all the North American green building programs—in fact, it tailors your results for rating system compliance reporting. We recognize there is a learning curve with LCA—find help on our web site, including video tutorials, an extensive user manual and transparency report, and a comprehensive guide to earning whole-building LCA credits in green building programs.

Take a look at these examples:



### **Centennial Garage**

Prime consultant Morrison Hershfield led a team targeting LEED silver for this massive building in Edmonton. The Athena Impact Estimator software was used to explore relative environmental impact of several different approaches to structural design.

*Photo courtesy of Mack Male*



### **Raleigh-Durham Airport Terminal 2**

Arup, the global firm of designers, planners, and engineers, used the Athena Impact Estimator to quantify and compare the environmental impacts of two structural system options for the roof of a new terminal. They selected the system with the smallest embodied carbon footprint.

*Photo courtesy of Arup*



### **Middlesex Centre Wellness and Recreation Complex**

This multi-use building in central Canada was designed with a total life cycle approach to selection of materials and systems and achieved four Green Globes. Cornerstone Architecture used Athena software to compare alternatives and to rationalize decisions with their client. They were able to quantify environmental savings achieved by their decisions on roofing and cladding systems, and interior finishes.

*Photo courtesy of Cornerstone Architecture Incorporated*

## **Support the Athena Institute**

We strive to make LCA accessible and free for all design practitioners, and we provide our tools and extensive materials databases as a public service. We can't do it alone—we need your help to maintain the LCA infrastructure for a more sustainable built environment. Please consider joining our family of members and supporters.

The Athena Sustainable Materials Institute is a non-profit membership-based think tank and research consultancy in life cycle assessment, providing leadership in LCA for the North American built environment.

Get in touch for more information about LCA, our work, and how your support can help.

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