

# The LCA-into-LEED Project:

## Progress Summary and Work Plan

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During 2007, work has progressed on two major fronts to incorporate LCA into LEED. These two fronts are:

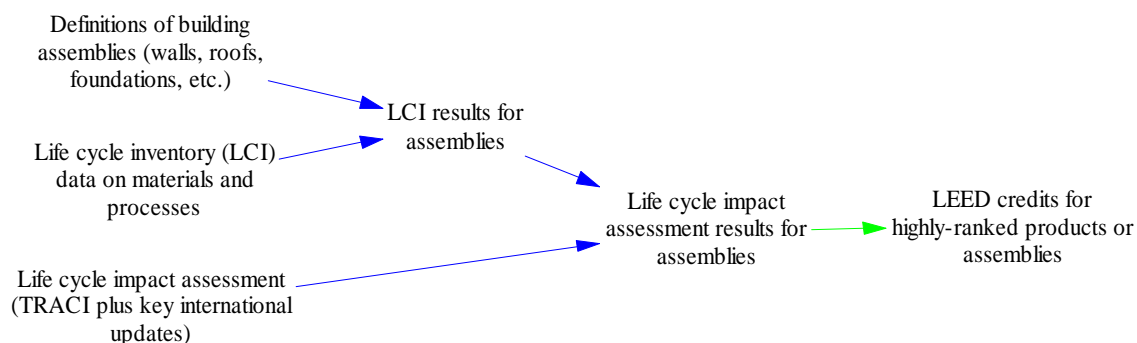
1. The data basis
2. LEED credit calculation method

This memo provides a brief summary of the project, work completed to date on both the data basis and credit calculation, and the steps remaining before releasing an LCA credit path for LEED-NC. Efforts thus far have established a foundation for the near-term deliverable as well as for evolution toward more sophisticated approaches in the future.

### Overview

In February 2007 the LEED Steering Committee (LSC) approved a plan to move ahead on the recommendations from LCA-into-LEED Working Groups A and B. The LSC called for a recommended approach to “Award points for selecting highly ranked products or assemblies from a pre-rated list based on the use of LCA.”

The approach approved by the LSC, combined with recommendations from Working Groups A and B, is shown graphically below. Building envelope and structural assemblies are defined in terms of their life cycle material and energy requirements. This information is combined with life cycle inventory (LCI) data on each of the material and energy inputs, to provide LCI results for each assembly. These LCI results are distilled to environmental impact category results using an update of the US EPA's TRACI method for life cycle impact assessment. Finally, the environmental category results are processed to determine what share of allowable LEED LCA credits are awarded to the use of one or more highly ranked assemblies.



The data basis is addressed by the steps connected with blue arrows. Credit calculation is the step illustrated by the green arrow. Work by the USGBC on each of these steps has proceeded in parallel during 2007, as summarized below.

## **Progress Summary and Completion Schedule**

### ***Data Basis***

Assembly data: The project team reviewed available data sources for assembly definitions and selected the assembly database contained within the Athena Impact Estimator. The project team is working with the Athena Institute so that, at the end of the first quarter of 2008, environmental impact category results for these assemblies will be available for use as an input to LEED.

Life Cycle Inventory Data: The project team reviewed available sources of life cycle inventory data on materials and processes and selected the US LCI database as a preferred source. It launched a task to validate and improve this dataset. This task has significantly upgraded the entire US LCI database, providing a benefit to all LCA users; it will be completed in January 2008. The project is facilitating the ability of companies and industries to voluntarily provide validated data to this database, which will be operational during first quarter 2008.

Life Cycle Impact Assessment: The project team has assisted the US EPA in its update of the TRACI method, including updated normalization data and revision of the nomenclature for consistency with the US LCI database. This update will be completed during first quarter of 2008.

### ***LEED Credit Calculation Method and Credit Implementation***

The project team has developed a draft methodology for calculating LEED points based on the life cycle performance of assemblies. This method has been developed in consultation with a task group formed by the LSC that includes Scot Horst, LSC Chair, and Joel Ann Todd, LSC Vice Chair. The method is designed so that LEED credits reflect the amount by which a building's assemblies exceed the performance of the market average assembly within each assembly group. Partial credit is possible for buildings which specify better-than-average assemblies for a subset of assembly groups.

The process for completing the method for credit calculation is as follows.

1. The project team and LSC's LCA Task Group will complete a definition of the methodology.
2. The methodology will be circulated for review and feedback from members of the prior LCA-into-LEED stakeholder group and Working Groups;
3. The method, informed by input from the Working Group membership, will be sent to the LEED Materials and Resources Technical Advisory Group (MR TAG) for review and input on technical and usability issues;
4. An updated method incorporating MR TAG input will be sent to the LSC for review and approval for public comment;
5. Public comments will be solicited, received, and responded to; and
6. A final version will be released as an alternative compliance path within LEED-NC, supplanting specific materials and resources (MR) credits. ETA: End of 2<sup>ND</sup> quarter, 2008.

The LCA credit will be optional but LEED project teams will be actively encouraged to use it, thus forming a beta test for adjustments and future permanent integration in LEED-NC and other LEED rating systems. The user interface will be a simple software tool requiring input of basic data such as type and square feet of envelope and structural assemblies.