

Including Wood Product Life-Cycle Assessment Data in Building Design Software

No building design software has offered an approach to quantify environmental impacts for building structures with wood. By incorporating whole-building life-cycle assessment (LCA) data in design software, building specifiers and owners can use the add-on tool, Tally, in Revit software to quantify these impacts of building with wood and thus gather points toward green building certification.

Background

A substantial body of wood product LCA data has been developed in the past 15 years for North America. However, its greatest impact in the marketplace will likely come when the data are included and available in all commonly used LCA databases and whole-building LCA design software. The most recent data developed by the industry and their cooperators (including the Forest Products Laboratory and the Consortium for Research on Renewable Industrial Materials (CORRIM)), though useful for reporting and for development of environmental product declarations (EPDs), is currently not included in some of the other relevant databases, including PE INTERNATIONAL's GaBi software, a LCA modeling software similar to SimaPro. For industry LCA data to ultimately be available within Tally, it must first be contained in the database managed by PE International, an international LCA software development company. Developers of Tally (KT Innovations, Philadelphia, Pennsylvania), a whole-building LCA program similar to Athena's Impact Estimator, have partnered with PE International for the purpose of verifying and sharing credible datasets.

Tally itself is a plug-in for Revit (Autodesk, Inc., San Rafael, California) construction modeling software. Most large architectural firms use Revit for building design drawings, so incorporating current wood industry LCA data into GaBi and then into Tally is an important next step following the completion of wood product EPDs. Although GaBi is a leading LCA program, industry-available CORRIM and Athena data are in SimaPro format, which is incompatible with GaBi. In order to add the aggregated data to GaBi, it must be reformatted.

Objective

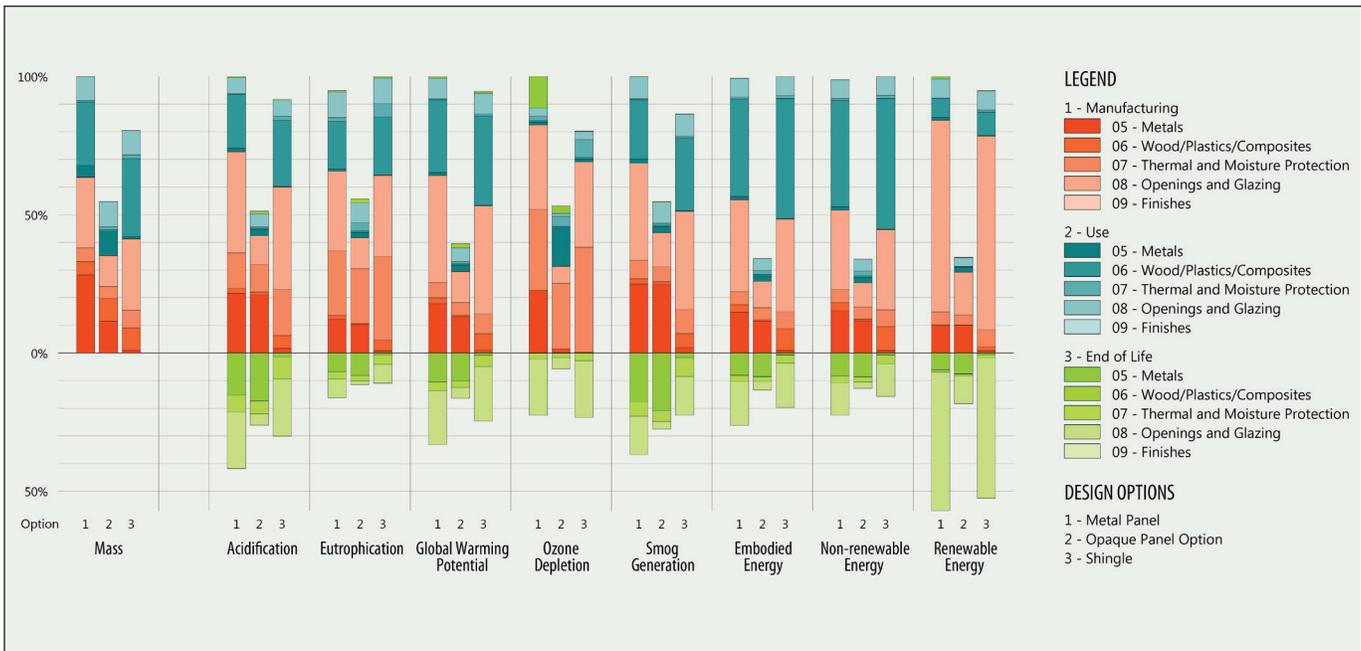
The objective of this project is to allow building designers to use Revit software for comparing the environmental performance of buildings made with wood and buildings made with alternative building materials.

Approach

Wood product LCA data will be reformatted for inclusion in the GaBi software LCA database and then the Tally add-on application used in Revit building design software.

Expected Outcomes

Results from this project will allow building designers to make on-demand environmental performance comparisons of buildings made with wood and with alternative (non-wood) building materials. By demonstrating that wood-framed buildings have lower environmental impacts than buildings made from alternative building materials, these tools will provide the framework for building professionals and owners to collect points



LCA results for three different structures using Tally add-on application in Revit building design software. Table courtesy of KT Innovations.

toward certification in green building certification schemes, including LEED, Green Globes, and National Green Building Standard.

Timeline

The project will be completed by March 2015.

Cooperators

USDA Forest Service, Forest Products Laboratory
American Wood Council

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