




Credit: Oz Architecture, KL&A Engineers & Builders, Photo: JC Buck



Increasing Carbon Literacy within the Design Sector

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MULTI-FAMILY/MIXED-USE | EDUCATION | OFFICE | RETAIL | INDUSTRIAL | CIVIC | INSTITUTIONAL




Designing a wood building? Ask us anything.

FREE PROJECT SUPPORT / EDUCATION / RESOURCES

Nationwide support for the code-compliant design, engineering and construction of non-residential and multi-family wood buildings.

- Allowable Heights/Areas
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- Structural Detailing
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- Fire/Acoustic Assemblies
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- Energy-Efficient Detailing
- Building Systems & Technologies

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Adidas North American Headquarters
LEVER Architecture, Studio O+A (interiors)
photo: Jeremy Bittermann



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MASS TIMBER

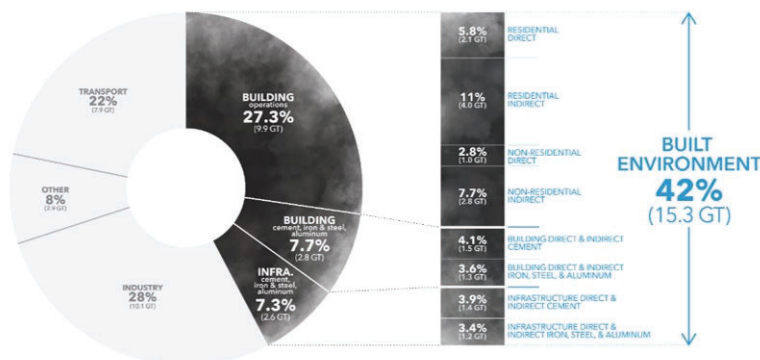


DowellLam



The Built Environment & Carbon Dioxide Emissions

TOTAL ANNUAL GLOBAL CO₂ EMISSIONS
Direct & Indirect Energy & Process Emissions (36.3 GT)



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Analysis & Aggregation by Architecture 2030 using data sources from IEA & Statista.

Built environment generates about **42%** of annual carbon dioxide emissions

Building operations: **27%**
Embodied carbon: **15%**



WoodWorks Resources

Biogenic Carbon Resources:

- » Calculating the Carbon Stored in Wood Products
- » When to Include Biogenic Carbon in an LCA
- » How to Include Biogenic Carbon in an LCA
- » Biogenic Carbon Accounting in WBLCA Tools
- » Long-Term Biogenic Carbon Storage

Expert articles on topics such as:

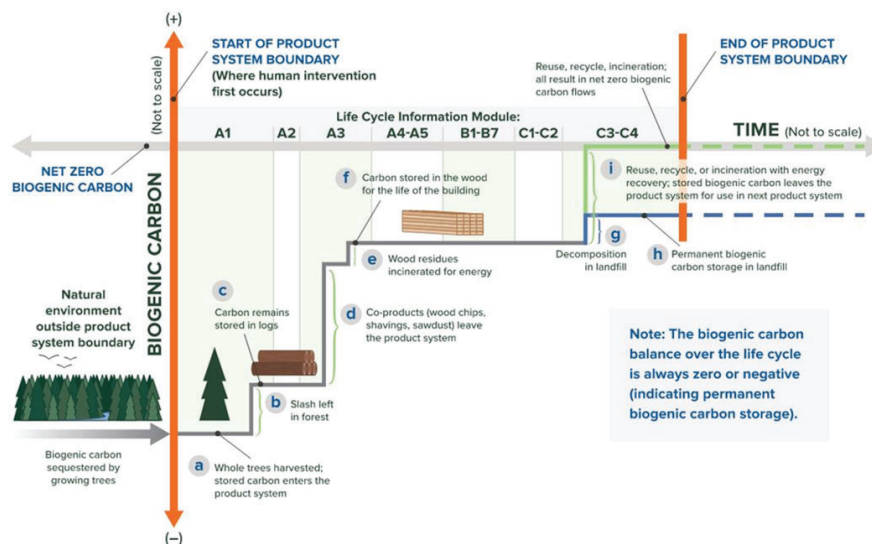
- » Introduction to WBLCA
- » Developing a Functionally Equivalent Design
- » How to Use EPDs

Scan for a complete list of sustainability resources at woodworks.org



Photo: DPR Office, SmithGroup, photo Chad Davies

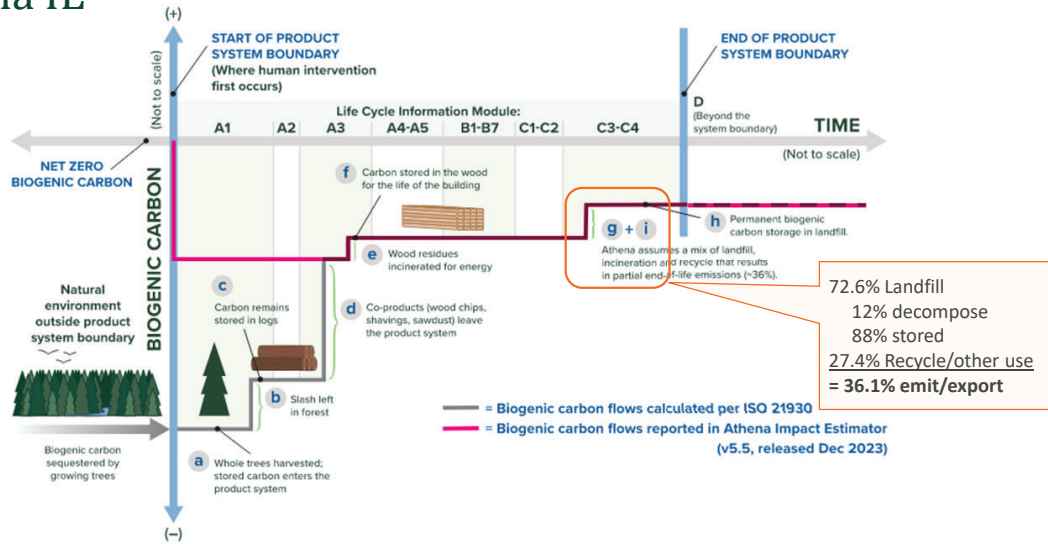
BIOGENIC CARBON FLOWS



<https://www.woodworks.org/resources/how-to-include-biogenic-carbon-in-an-lca/>

Athena IE

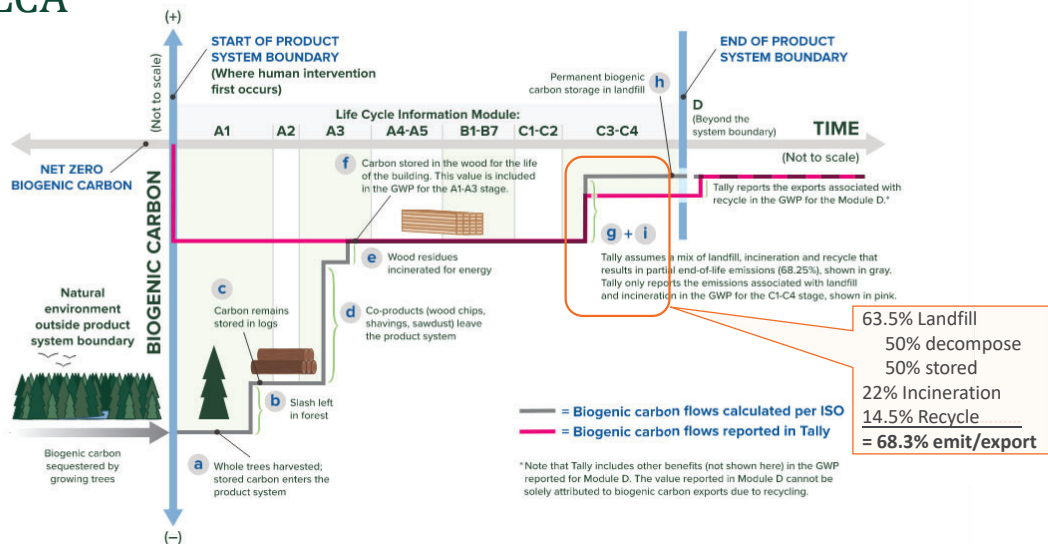
BIOGENIC CARBON FLOWS



<https://www.woodworks.org/resources/biogenic-carbon-accounting-in-wblca-tools/>

TallyLCA

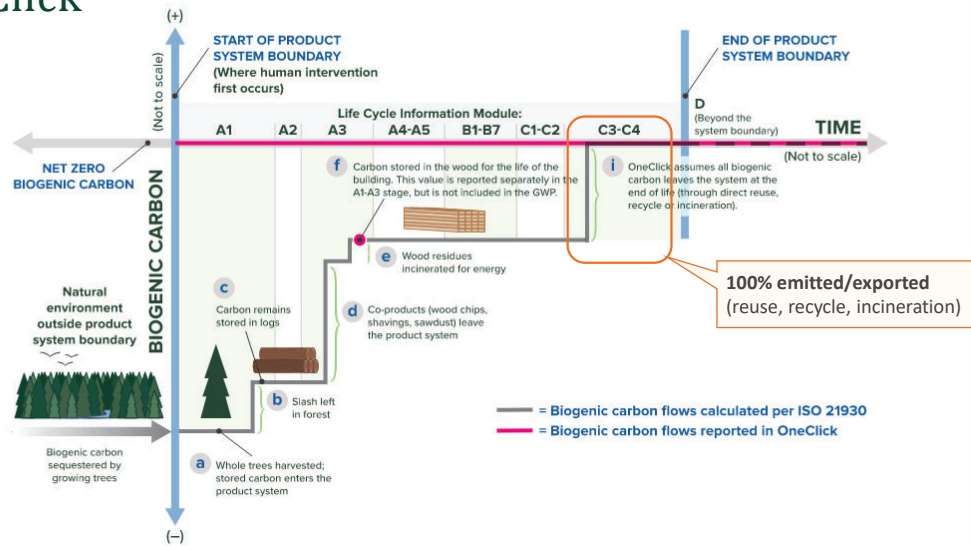
BIOGENIC CARBON FLOWS



<https://www.woodworks.org/resources/biogenic-carbon-accounting-in-wblca-tools/>

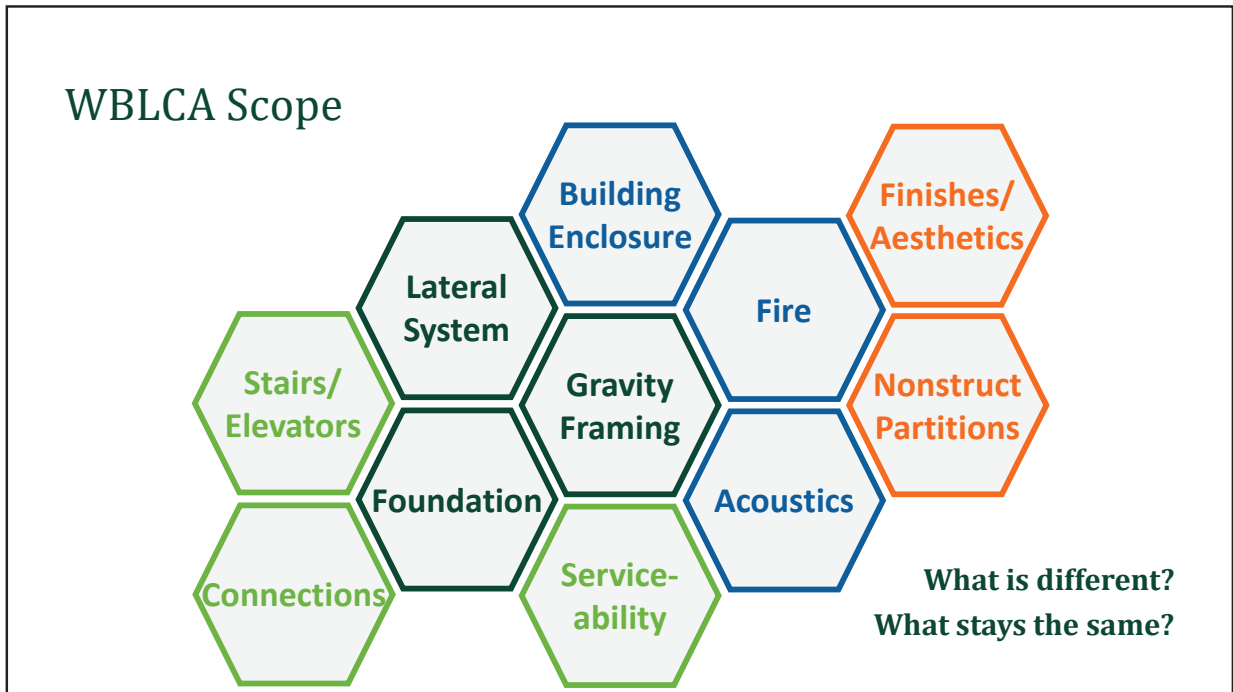
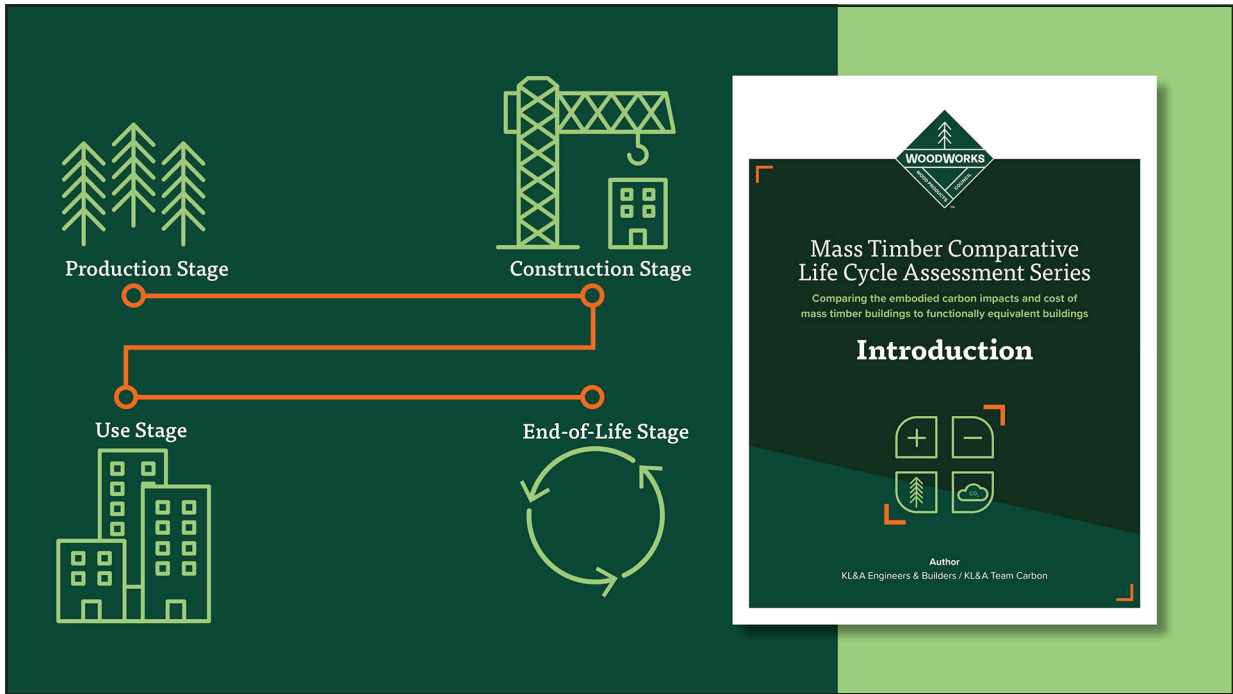
One Click


BIOGENIC CARBON FLOWS




<https://www.woodworks.org/resources/biogenic-carbon-accounting-in-wblca-tools/>







WBLCA Considerations & Worksheet



Ashley Cagle, P.E., S.E.
Erin Kiefer, P.E., S.E., LEED AP
WoodWorks – Wood Products Council

Considerations and Worksheet for Structural WBLCA of Mass Timber Buildings


Guidance for mass timber building designers undertaking whole building life cycle assessment (WBLCA)

The design community has embraced the use of whole building life cycle assessment (WBLCA) as a means to quantify, and sometimes compare, the environmental impacts of buildings. While this momentum is exciting, detailed standards for a unified approach to WBLCA are still in development, leaving designers without clear direction during the assessment process. This document seeks to outline requirements pertaining to life cycle assessment (LCA) found in international standards, and provide guidance on how WBLCA for mass timber buildings are performed using commercially available LCA tools.

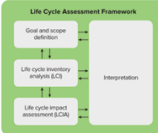
Requirements and guidelines for LCA are provided in the International Organization for Standardization's ISO 14040 (Principles and framework) and ISO 14044 (Requirements and guidelines). ISO 14040 Section 4.2.1 outlines four phases of an LCA as shown in Figure 1:

- Goal and scope definition
- Life cycle inventory (LCI) analysis
- Life cycle impact assessment (LCIA)
- Interpretation

As illustrated by the arrows in the figure, these phases are interrelated and performing an LCA is an iterative process. This paper will step through common decisions building designers need to make in each phase of the LCA. It is accompanied by a worksheet—sections of which are included here—to help the designer answer these questions when performing a WBLCA. The worksheet can be downloaded as a flexible PDF at www.woodworks.org/WBLCA_worksheet



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Renata French Design Group, LLC
HCO Structural Engineering



Worksheet for Structural WBLCA of Mass Timber Buildings

This flexible PDF accompanies the WoodWorks paper, *Considerations and Worksheet for Structural WBLCA of Mass Timber Buildings*, which shows through common decisions building designers need to make in each phase of a life cycle assessment (LCA). The paper can be downloaded at www.woodworks.org

For questions or assistance with the LCA process, please contact WoodWorks at help@woodworks.org

Goal Components	Notes
Intended application (What)	
Reason for study (Why)	
Intended audience (Who)	
Will results be made public?	

Photo: DPR Office, SmithGroup, photo Chad Davies

Thank You!

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