Climate-Smart Wood Products

Leveraging the Building Sector for Positive Transformation

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Climate-Smart Forestry (CSF)

is a collection of strategies and management actions that maintains and restores forest ecosystems, removing and storing more carbon than conventional practices, and increasing forest resiliency in the face of climate change.

- 1) reduces carbon emissions
- 2) increases forest resilience to climate change
- 3) supports ecosystem service and cultural values
- 4) supports forest economies by increasing forest productivity and incomes.

Can you call a <u>wood product</u> "Climate Smart?"



Buildings and infrastructure account for nearly 40% of all energy-related CO₂ emissions.

Qian'an steelworks in Tangshan Source: Xiaolu Chu / Getty Images



How should we build? How do we lower the climate impacts of our projects?



Trends in Building Sector

- Increased climate literacy amongst design professionals
- Increased demand from clients for robust embodied carbon accounting & goal setting
- Growing **desire for transparency** across supply chains
- Emergence of state and federal **Buy Clean Legislation** and other low-carbon procurement policies.



	Optimize Project	Optimize System	Optimize Procurement
STRATEGIES	 Reusing materials/buildings Reduced floor area Design for Disassembly 	 Design for efficiency Choose low carbon systems and assemblies Use alternate, low-carbon materials 	 Select the lowest carbon version of the selected product Clean manufacturing (efficiency, fuel switching)
TOOLS	Calculators	Whole Building Life Cycle Assessment (WBLCA)	Environmental Product Declaration (EPDs)
POLICY LEVERS	Reuse/deconstruction policies		
	City zoning, land use, and building	regulations	
	Building Codes / Climate Action Plans / Incentive Programs		

Procurement Policy



What are you comparing?

LCA data and models can be used for disclosure or for comparison and optimization.

Substitution

What is the value of building this project with concrete/steel vs. mass timber? How much carbon is stored in my project?

- Comparative LCA
- WBLCA / full cradle to grave
- Material, assembly or structural system

Supply Chain Variability

How was the wood product manufactured?

Where did the wood come from?

How far did it travel to my job site?

How was that forest managed?

- Comparative LCA
- Product EPDs, Certification,
- Landscape-level assessments



US Current Focus: State and Federal Procurement Policy (as of Sept 1 2021)







Figure 1. Flow of data from the supply chain to an EPD and project submittal. (*) indicates areas where specificity and other minimum data requirements are set by the Product Category Rule. Policies can add requirements to strengthen data reporting.





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Diagram by Stephanie Carlisle



What is missing from wood EPDs?

- N American wood product EPDs represent industry as a whole
- **Carbon neutrality assumption** (national level accounting)
- Most forestry activities (and biogenic carbon flows) out of scope
- Forestry practices that produce increases or decreases in forest carbon storage are largely excluded
- No ability for projects to represent value of climate-smart forestry practices & exceptional land management.



Diagram by Tall Wood Institute, 2019





Which wood products should we purchase? How can our projects support climate efforts and forestry?

CHALLENGES

Carbon Accounting

- Representing forest mgmt. in wood product LCA: can we allocate landscape-level carbon to products? (balancing production, restoration & conservation)
- Connecting certification to measurable climate impacts
- Valuing other ecosystem services and ecosystem resilience and integrity
- Timescale of Biogenic and Fossil CO₂ Emissions
- Traceability & transparency of wood supply chains

Data for Design Decisions

- Lack of consistency across WBLCA tools
- Lack of facility- and supply-chain specific EPDs.
- Lack of clear specification language and guidance for designers
- Treatment of biogenic carbon for net-zero claims



CHALLENGES

Forestry knowledge and data is not reaching designers & builders

Leaving designers unable to distinguish and incentivize climatesmart wood supply chains.





New industries
will be created
and transformed
as we transition
towards a low-
carbon, resource
efficient economy.Who will benefit?



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