Introduction to the Wood Carbon Seminars
Speaker Background

Kate Simonen

- Current position:
  - Associate Professor of Architecture, College of Built Environments, University of Washington
  - Department Chair, effective June 2020
  - Director, Carbon Leadership Forum

- Credentials:
  - M.S. Structural Engineering, M.Arch Architecture
  - Licensed Architect, Structural Engineer, Civil Engineer

- Key experiences
  - Author *Life Cycle Assessment: Pocket Handbook*
  - Over 15 years professional experience
  - Past ten years focused on integrating LCA and practice
Buildings and the Climate Crisis

Building’s Climate Impact

Global CO₂ Emission by Sector

- Industry: 30%
- Building Operations: 28%
- Transportation: 22%
- Building Materials and Construction: 11%
- Other: 9%


Total Building Material Impacts?

- Building Operations: 28%
- Building Materials (core & shell): ~22% (32%~10%)
- Non-Building Mfg: ~10%
- Other Building Material Mfg: 11%
- Other: 6%

Adapted from 2019 Global Status Report, Global Alliance for Building and Construction (GABC) and Architecture 2030.

- The building and construction sector has a vital role to play in eliminating carbon, as it is responsible for at least 39% of global carbon emissions.

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Operating and **Embodied** Carbon

Total Carbon = Embodied Carbon + Operational Carbon

\[ TC = EC + OC \]

Image: S. Smedley Skanska
Embodied Carbon Estimates

**MATERIAL QUANTITY ESTIMATE**

**EMBODIED CARBON PER UNIT MATERIAL**

**BUILDING EMBODIED CARBON (EC) ESTIMATE**
Wood and how we use it

We couldn’t live without trees. We get wood from trees. We use wood in many ways. Let’s see how we get our wood.

The forest ranger watches out for fire. A forest fire could burn down a whole forest.

The lumberjack cuts down the tree.

Tree trunk

Some trees are left standing. Seeds from these trees will fall to the ground. New trees will grow in place of the old trees that have been cut down.

The tree trunk is sawed into logs.

Lumbermen ride the logs down the river. They try to keep the logs from getting jammed. Oh dear! The logs are jammed! Unjam them (log jam, lumbermen)!

The logs are put in a river to float downstream.

A stump

The stump is almost 100 years old and is ready to be cut down.
Big picture

Forests

Climate change

Life cycle assessment (LCA)

Buildings

Wood products

Image: S. Smedley Skanska

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Wood Carbon Seminars – Preliminary survey

- 82 respondents
Wood Carbon Seminars - Preliminary survey

- Total score by topic