Product Sustainability Standards
Case Study: Laminated Veneer Lumber

Dr. Yuan Yao
Dr. Stephen Kelley
Dr. Traci Rider
Dr. Adam Scouse

Forest Biomaterials Department
NC State University

Green Buildings and Sustainable Materials Project
Product Sustainability Standards

Product standards relevant to sustainability exist at all life cycle stages.

Let’s investigate the standards pertinent to life cycle stages with respect to laminated veneer lumber (LVL).

LVL:
an engineered wood product that consists of multiple layers of thin wood assembled with adhesive.

How It’s Made:
LVL

**Sustainability Standards: In the Forest**

**Forest Certification:** a voluntary process whereby an independent third party assesses the quality of forest management and production against a set of requirements.

Big names in forest certification:

1. Sustainable Forestry Initiative (SFI), U.S. & Canada
2. Programme for the Endorsement of Forest Certification (PEFC)
   - Recognized worldwide
   - Endorses SFI certification

**Goals:**

- Emphasize long term sustainable growth and yield of forests
- Protect riparian zones and biological diversity
- Minimize waste from harvesting
- Ensure forestry practices comply with federal, state, and local laws
- Provide transparency with regard to forestry practices
Sustainability Standards: In the Forest

Currently, only the timber industry has established third-party certified standards for sustainable resource extraction and fair labor practices that meet Living Building Challenge (LBC) project requirements.

The Living Building Challenge requires all wood used to construct a LBC project to be FSC certified, from salvaged sources, or from wood harvested on-site for construction or restoring/maintaining the continued ecological function of the on-site bionetwork.
Many of the manufacturers that use logs, lumber, and other wood products aren’t necessarily involved with growing the trees. How do they ensure they are buying sustainable fiber?

**Chain of Custody Certification:**
Certification process ensures manufacturers identify and monitor how much of their product comes from certified sources

**Goals:**
- Ensures manufacturers can identify where raw materials are sourced
  - And that raw materials are sourced legally
- Ensures manufacturers can track certified material through production processes
- Ensures manufactures are documenting what they buy and where from
- If a manufacturer is outsourcing any of their work, certification ensures contractors are following the same standards
Sustainability Standards: Product Manufacturing

LVL uses adhesives that release low levels of formaldehyde, a material identified on the Living Building Challenge’s (LBC) Red List. How do manufacturers ensure formaldehyde emissions meet consumer standards?

Low Formaldehyde Emission Certification:
Manufacturers work with third party parent organizations like the Engineered Wood Association (APA) to test products for formaldehyde emissions according to the manufacturer’s quality system.

Goals:
• Ensures that products release acceptable levels of formaldehyde (e.g. less than 0.20 mg per liter)
• Ensures that proper formaldehyde testing procedures were followed
• Ensures testing procedures and results meet national and country specific emission standards
Sustainability Standards: Products in Application

How does LVL get certified as a green product for use in construction?

Green Verification Reporting:
The APA also works with manufacturers to ensure their products are qualified as a green building material

Goals:
- Ensures that products are made of resource efficient materials
- Ensures structural systems are designed to reduce material usage and emphasize safety
- Ensures building materials are sourced regionally
- Ensures that LCA’s have been conducted for relevant products
Sustainability Standards: Products in Application

Example:

![Weyerhaeuser Building with Wood](image)

- **Using our products for LEED points**
  All our wood products can help builders and architects achieve LEED designation for their buildings. Through the alternate compliance path, products with SFI® fiber sourcing certification count as legal, responsible, and, with SFI chain of custody certification, as certified. Find more information on the [Sustainable Forestry Initiative's website](https://www.sfi.org).
Sustainability Standards: Industry Wide

In some cases, third parties complete product EPD’s on behalf of multiple production facilities and manufacturers.

Environmental Product Declarations:
Communicates the environmental impacts of LVL throughout its life cycle stages

Cradle-to-Gate Impact Assessment Results

Cradle-to-Gate Energy Use

Outside of sustainability standards, material safety data sheets (MSDS) sheets also serve as a resource to understand the potential hazards associated with products.

**Goals:**
- Identify product hazards
- Provide relevant first aid measures
- Provide relevant fire-fighting measures
- Provide proper handling and storage procedures
- Identify a product’s physical and chemical properties
- Provide relevant disposal and transportation considerations
**Sustainability Standards:**

**Workplace and Consumer Safety**

Building projects seeking to meet LEED building standards require a Construction Indoor Air Quality Management Plan & Indoor Air Quality Assessment

**Intent:**
To promote the well-being of construction workers and building occupants by minimizing air quality problems associated with construction and renovation

**Requirements:**
Develop and implement an indoor air quality (IAQ) management plan for the construction and preoccupancy phases of the building

- Contractors: Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings
- Protect absorptive materials stored on-site
- Do not operate HVAC equipment during construction
- Prohibit the use of tobacco products inside the building and within 25 feet
Summary of important module concepts:
• While voluntary, sustainability standards may serve as a barrier to entry for certain markets
• Sustainability standards are built into many of a product’s multiple life cycle stages
• Third party trade organizations play a pivotal role in helping manufacturers meet sustainability standards throughout these stages
• Third party organizations can also work on behalf of a group of manufacturers to certify products from multiple manufacturing facilities

Disclaimer:
Sustainability based standards in this presentation are specific to the wood products industry and may vary from other industries
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