

Title: Sustainability Attributes of Bio-Based Structural Building Products

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Abstract:

Bio-based structural building products have several characteristics that are radically different from non-bio-based products. Some of these characteristics are so different that it is difficult to develop useful measuring sticks when discussing the topic of sustainability. This paper will explore the sustainability attributes of products made from wood or agricultural fibers. It will answer the following questions:

- How does an engineer know if a bio-based building product comes from a sustainable source?
- What measuring sticks should standards development organizations use to weigh the sustainability advantages of one product attribute versus another? For example, what are the relative sustainability benefits of each part of the triangle of “re-use, renew, recycle”?
- What are the advantages and disadvantages of using products made from short-rotation agricultural crop fibers versus long-rotation forest fiber?
- How does increased building service life improve the sustainability characteristics? What techniques can be used to increase building service life? Which of these techniques have other attributes that offset the advantages?
- What are some of the sustainability attribute differences between various types of wood-based building products (i.e., solid sawn lumber versus engineered wood)?

The paper will address these questions in the context of life-cycle assessment studies that measure the attributes of embodied energy, global warming potential, air emissions, water emissions, and solid waste for bio-based products.