# CARBON IN WOOD PRODUCTS - FAQ'S

## Q: Is harvesting trees a good carbon management strategy?

Maybe not. While living trees store a great deal of carbon, the biggest carbon pool in the forest is below ground in the soils, accounting for nearly 50% of total ecosystem carbon. The merchantable portion of trees accounts for only about 10%. Therefore, we must consider the full impacts of logging on the entire ecosystem, rather than simply the transfer of carbon from trees to products.

## Q: How much wood from trees ends up in wood building products?

It depends. Factors involved include the species and age of the tree, terrain, harvesting method, efficiency of sawmill, and others. Studies have shown that from 15-38% of the initial living tree biomass ends up in long-lived building products. This means that 62-85% of the carbon in the tree is emitted in the process, either burned for fuel, or used in short-lived products like pulp and paper.

## Q: Do wood products sequester $CO_2$?

Trees absorb and sequester $CO_2$. Wood products are outputs of an industrial process that emits large quantities of $CO_2$. For example, the forestry and wood products sector in Oregon is one of the largest emitters of Greenhouse Gases in the state.

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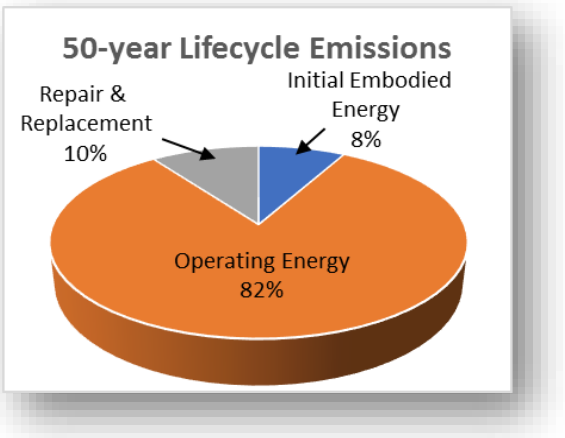
## Q: Does building with wood reduce the carbon footprint of a building?

No. Reducing the carbon footprint of a building primarily depends on design and operating efficiency. Low-carbon products may reduce the Initial Embodied Energy (IEE) of a building, but the total IEE typically accounts for about 10% of lifetime emissions.
A building may comprise 60 different basic materials, focusing on one or two of these as an emissions reduction strategy, is playing at the margins of the issue. Heating, cooling and electricity consumption make up 80-90% of lifetime emissions. Therefore, a better emissions reduction strategy is to build better buildings.




## Q: Is there a better way to reduce the carbon footprint of buildings?

At least 40% of total GHG emissions in the U.S. result from the operation of buildings. All buildings are hybrid buildings, built with a mix of materials. Design decisions that result in energy efficient, resilient, and long-lived buildings are a more comprehensive answer.

## Q: Are young forests more productive than old forests?

Some argue that ecosystem productivity in a forest declines with age. But current research strongly suggests this is not the case. Old-growth forests are massive reservoirs of carbon stock, and can continue to uptake and sequester atmospheric carbon at highly productive rates for centuries. One single mature tree can add as much carbon to a forest in a year as is contained in an entire small or mid-sized tree.

## Q: Are all $CO_2$ sources included in wood building products studies?

Not always. Emissions at several stages of the wood products lifecycle are sometimes omitted for various reasons. Biogenic emissions from biofuels, logging slash and mill residues are frequently omitted, as these are considered 'carbon neutral'. The actual carbon footprint of wood products will often be considerably greater than the reported or 'net' emissions.

| Emissions Source | Yes | No | Maybe |
|---|---|---|---|
| Industrial | ✓ | | |
| Transportation | | | ✓ |
| Biogenic | | ✓ | |
| Soil carbon | | ✓ | |
| Logging Slash | | | ✓ |
| Use Phase | | | ✓ |
| Disposal | ✓ | | |

## Q: What assumptions are made in carbon sequestration research?

***Sustainability*** – It is usually assumed that source forests are sustainably managed. This is not always the case. Only a moderate fraction of forestland in the U.S. is certified as sustainably managed.

***Harvesting*** – It is nearly always assumed that the logging has no impact on the soil carbon pool. Current research strongly suggests that harvesting measurably reduces soil carbon.

***Manufacturing*** – The use of biofuel is usually considered "carbon neutral", and omitted from final or net emissions figures. These emissions are real, but carbon neutral accounting protocols permit them to be excluded.

***Use Phase*** – The thermal properties, durability, and risk factors from fire and moisture are not typically considered.

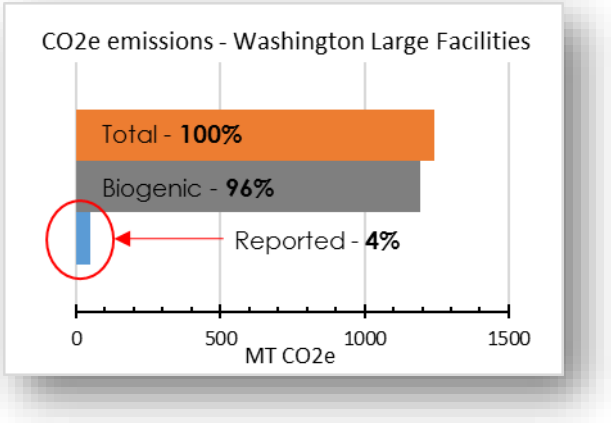
***Disposal*** – Estimates of methane emissions from wood products decomposing in landfills are highly speculative, and yield no solid conclusions.

## Q: Are low-carbon components always the best choice?

In the real world, building design involves a complex series of trade-offs. Factors involved in materials selection include durability, thermal properties, longevity, fire performance, cost, and others. Building more energy efficient buildings, with lower lifetime emissions, often involves increasing the Initial Embodied Energy costs, as energy savings systems and components may require additional inputs.

## Q: Are all biogenic emissions 'carbon neutral'?

No. There is considerable controversy in the research community on this issue. While current accounting standards permit the forest products sector to consider 100% of biogenic emissions carbon neutral, this assumption is being challenged, both by researchers and the EPA. The omission of biogenic carbon emissions underreports the actual emissions associated with the manufacture of wood products.




## Q: Are wood building products 'greener' than concrete or steel?

It's not appropriate or possible to draw general conclusions about the comparative benefits of different building materials from comparative Lifecycle Assessments. Location, design, climate, supply chain and a host of other project specific variables combine to determine lifetime emissions. These factors will vary from project to project, and between regions.

## Q: How long does carbon stay sequestered in wood products?

It depends on the lifespan of the building, and how the waste is disposed of. The service life of buildings can range from as short as twenty-five years, to a century or more. However, necessary repair and replacement of wood components will gradually remove these products from the built environment before a building is decommissioned. In the event of damage from fire or moisture penetration, wood structures can suffer significant losses.