



## Research Repeatedly Proves Wood is “Greener”

**Wood is a proven building material.** It is strong relative to its weight, requires little energy to produce, readily available, affordable, safe, long lasting, and even easy to design and build with. It is also completely renewable.

**Think About This:** There is a large movement to replace wood in many building projects with “alternative” materials such as steel and concrete – materials which require greater amounts of energy for production and construction and are made from many non-renewable materials.

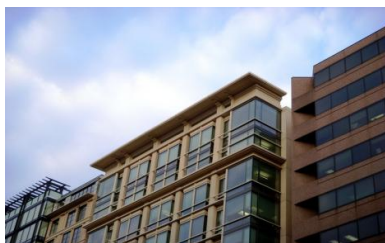
From the production of a structure’s raw materials and throughout its useable life, even including its demolition decades down the road, **less energy is required to build a wood structure than steel or concrete structures.** Consider the following studies covering residential homes, commercial buildings, and utility poles. The result of each study is that wood is the superior material when considering its long-term impact to the environment.

### **Residential Homes: Wood has the Lowest Life Cycle Energy Requirements**



A study by researchers at the Consortium for Research on Renewable Industrial Materials (CORRIM) analyzing the energy requirements for a 75-year life cycle of a typical home revealed that **a concrete-frame home requires 16% more energy than the same wood-frame home and a steel-frame home requires 17% more energy.** The study included the energy required for the extraction, hauling, and production of materials through construction energy requirements and electricity used by the homeowner throughout the home’s life.<sup>1</sup>

### **Commercial Buildings: Wood has the Lowest Environmental Impact**



The ATHENA™ Institute helps architects, engineers and others to evaluate the environmental impacts of new and existing buildings through life cycle assessment (LCA), an internationally recognized approach to evaluating the impacts that a product or process has on the environment over the course of its entire life.<sup>2</sup>

ATHENA™’s life-cycle research comparing wood, steel, and concrete structural designs for a 3 story commercial building found that wood building products have the lowest greenhouse gas emissions, lowest air pollution index, lowest solid waste during production and on-site construction, and the lowest resource use index – a measure of the long-term impacts of resource extraction.<sup>3</sup>

### **Wood Poles: CCA Treated Wood Poles Require Less Energy to Produce & Deliver**

The results of a 1996 study by Stalker and Conklin show that the energy required for the production and delivery of treated wood poles is as little as 1/13<sup>th</sup> of the energy required to produce and deliver comparable poles of steel or concrete.<sup>4</sup>

### **Wood: Healthy, Clean, Reusable, & Renewable**

Regarding materials extraction, harvesting wood has been shown to be much less environmentally intrusive than conventional open-pit mining of raw iron ore, coal, and limestone for steel and concrete *and* forest regeneration has the globally-beneficial effect of absorbing carbon dioxide and releasing oxygen.

Utility Pole Energy Comparison (MJ = megajoules)			
	Mass kg	Unit Factor MJ/kg	Energy MJ
CCA treated wood	353	3.11	1100
Steel	166	58.50	9710
Concrete	1350	9.91	13300

As the only building material that is 100 per cent renewable, wood can not only be recycled, but regenerated as well. In fact, in the United States we are currently growing trees at a rate greater than we are cutting them down.<sup>6,7</sup> Wood is the greener building material.



American Pole and Timber  
[www.PoleAndTimber.com](http://www.PoleAndTimber.com)  
(866) 397-3038

### **Resources Cited**

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**4. Energy Consumption of CCA Treated Wood**

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**5. Building with Wood: The Right Choice**

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