OPEN LETTER

Climate-Smart Cross-Laminated Timber: Mass Timber Buildings and Forest Stewardship

Catastrophic climate change is an unprecedented threat to earth’s life support systems. Recognizing that the energy used to construct and operate buildings accounts for approximately 40% of global greenhouse gas (GHG) emissions, we, the undersigned, share a goal of drastically reducing, and ultimately reversing, the carbon impact of the built environment.

In recent decades, the green building community has led a revolution that has increased the energy efficiency of buildings and resulted in significant reductions in carbon emissions. But this does not address those emissions generated from the extraction, manufacturing, transport and use of building materials, which are estimated to account for roughly 10% of the global total. The next frontier, then, is to tackle the embodied carbon of the stuff that buildings are made of. Collectively, we need buildings whose net carbon is neutral or even positive.

Recently, “Tall Wood” buildings that use mass timber products like Cross-Laminated Timber (CLT) in their structures have gained prominence as a strategy for pursuing this goal. Proponents of mass timber maintain that emissions can be reduced by substituting wood for other building materials because trees capture and store atmospheric carbon. Too often, however, the carbon benefit of such substitution is exaggerated because the impacts of timber extraction on forests are left out of the equation. Scientists increasingly recognize that a key component of efforts to mitigate the effects of climate change is to reduce logging-related greenhouse gas emissions through improvements in forest management and increases in forest recovery and protection.

While there is no simple, one-size-fits-all answer as to how best to harvest timber to optimize carbon, in general...

- Logging of the world’s remaining mature and primary forests, as well as unroaded/undeveloped and other intact forest landscapes, should cease. Research indicates that forest carbon is maximized where
there are the highest levels of forest protection and the least amount of logging, or no logging at all. Therefore, we should permanently protect those forests that are the most carbon-rich, including U.S. federal public forestlands;  
• Older forests sequester and store more carbon than younger forests, so there is a forest carbon benefit if logging rotations (intervals between harvests) are lengthened. Forests should be managed to optimize the amount of carbon they sequester and store, and not for the quickest return on investment;  
• Forest management that is less intensive (e.g. smaller clearcuts, more live-tree retention, wider riparian buffers) results in less overall emissions of forest carbon than more intensive management (e.g. industrial tree farms that rely on large, frequent clearcuts and applications of GHG-emitting fertilizers);  
• Tree plantations should not be established at the expense of natural forests and, since forests that are managed as ecosystems rather than monocultures are more resilient in the face of climate change, and have higher carbon storage, many existing plantations should be managed toward a more natural condition;  
• Afforestation (planting trees in areas where there are none currently and it is ecologically appropriate to do so) is desirable because it brings near-term carbon benefits and will increase wood supply in the long term.

Not only would taking these actions improve the management of forest carbon, it would yield numerous other important environmental benefits including less harm to wildlife habitat, relatively higher ecological complexity and biological diversity, and reduced negative impacts on soil and water quality.

To sum up, the climate implications of mass timber buildings turns on what happens in the forest. A broad-based transition to CLT that leads to significant increases in environmentally harmful logging and forest degradation would only deepen our problems: CLT cannot be climate-smart unless it comes from climate-smart forestry. While a perfect mechanism to identify such products does not yet exist, FSC certification of privately owned forestlands can support progress in the right direction.
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i For a list of supporting citations see
http://content.sierraclub.org/ourwild
america/resources-0

http://www.worldgbc.org/sites/defa
ult/files/GABC_Global_Status_Report_ V09
november_FINAL.pdf

ii

iii King, B. (2017). The New Carbon

iv Ripple et al. (2017), in press in
BioScience
Natural climate solutions. Proceedings
of the National Academy of Sciences of
the United States of America 114:


Krankina, O. et al. 2014. Ibid. This study identified most of the most carbon dense forests were on public lands and most were threatened by logging on private lands.


