

Promotion of Wood Products

Description

Wood is a readily available and renewable building material that creates jobs and stimulates the economy. It can be used in urban or rural settings to build energy-efficient houses, buildings, and other needed infrastructure. Advanced wood products are becoming the latest innovation in tall building construction. Products like cross laminated timber (CLT) are flexible, strong, and fire resistant. In construction, wood products can be used as a successful and sustainable alternative to concrete, masonry, and steel. Using wood also reduces GHG emissions by storing carbon and simultaneously offsetting emissions from conventional building materials. By some estimates, the near term use of CLT and other emerging wood technologies in buildings 7-15 stories could have the same emissions reduction as taking more than 2 million cars off the road for 1 year.

To reduce GHG emissions and sequester carbon in building products, USDA will encourage both conventional wood construction technologies (e.g., wood frame construction) and new construction materials and techniques (e.g., CLT). CLT presents an historic opportunity to introduce a well-established technology that has profound climate implications. It has been demonstrated worldwide to be a cost-effective sustainable alternative to conventional concrete and steel construction particularly in the mid-rise to low high-rise building spaces. Most building construction in those ranges emits considerable amounts of carbon, mainly in the creation of concrete. CLT buildings have been evaluated as being carbon negative for decades, meaning their construction sequesters more carbon than they release.

In FY 2015, the Forest Service provided a \$1 million grant to WoodWorks, an organization that provides outreach and technical support for architects and engineers to encourage the use of wood products as a replacement for more GHG-intensive building materials. That year, the partnership supported 440 wood construction projects, which reduced GHG emissions by 1.2 MMTCO₂e through carbon stored in the wood products and the substitution of wood for steel or concrete.

Greenhouse Gas Reduction Goal

Goal	GHG Reduction Goal (MMTCO ₂ e per year by 2025) ²⁰
Increase the number of wood building projects supported annually through technical assistance from 440 in 2015 to 900 in 2025.	19.5 ²¹

Partnership Opportunities

To encourage the production and use of CLT, the Forest Service is:

- Sponsoring a feasibility analysis by SmartLam in Montana to look at adding an architectural grade CLT line to its current industrial matting CLT line;
- Funding an Oregon State University assessment of the use of small diameter material for CLT production, which could increase commercial demand for wood harvested from hazardous fuels treatments;
- Working with Clemson University to determine the behavior of southern yellow pine in CLT applications;
- Underwriting and helping design a wide-ranging national conference on “Mass Timber” in Portland, Oregon, in March 2016 (Mass Timber includes CLT and related technologies);
- Retaining partners to conduct “dynamic blast tests” to complement computer-modeled blast testing already conducted on behalf of the Department of Defense which could open up defense-related applications of CLT;
- Creating, in partnership with the Softwood Lumber Board, the first interactive database on CLT research with an eye to making current knowledge more accessible to specific audiences such as developers and code officials. This database work was initiated after a global conference of CLT researchers in November 2015, in Madison, Wisconsin, with the goal of identifying the status of current research and research needs;
- Providing primary underwriting to WoodWorks which in turn provides training and project-specific technical assistance to architects, engineers, developers, and code officials;

²⁰ For information on how to interpret this goal, see p. 6.

²¹ The GHG benefits of wood building products can be split into two major categories: long-term carbon sequestration in the wood itself and reductions from substituting wood for more GHG-intensive building materials, including concrete and steel. Of the 19.5 MMTCO₂e reduction, 5.9 MMTCO₃e is sequestered in the wood, and the remaining 13.6 MMTCO₂e is reduced through substitution.

CASE STUDY

In September 2015, USDA, in partnership with the Softwood Lumber Board and the Binational Softwood Lumber Council, announced the winners of the U.S. Tall Wood Building Prize Competition. The two winning development teams were granted a combined \$3 million in funding to support the development of tall wood demonstration projects in New York and Portland, Oregon.

“The U.S. wood products industry is vitally important as it employs more than 547,000 people in manufacturing and forestry, with another 2.4 million jobs supported by U.S. private-forest owners,” said U.S. Secretary of Agriculture Tom Vilsack. “By embracing the benefits of wood as a sustainable building material, these demonstration projects have the ability to help change the face of our communities, mitigate climate change, and support jobs in rural America.”

Next-generation lumber and mass timber products are flexible, strong, and fire resistant, and can be used as a safe and sustainable alternative to concrete, masonry, and steel. Using wood helps to reduce GHG emissions by storing carbon and simultaneously offsetting emissions from conventional building materials. Wood can also help struggling rural forest communities. During the Recession, the drop in new construction and decline in home remodeling had a deep impact on wood manufacturing. However, if next-generation wood products can penetrate just 5 to 15 percent of the non-residential North American market, it would mean roughly 0.8 to 2.4 billion board feet of lumber consumed annually. To put that in real-world context, roughly 35 jobs are created for each million board feet of wood processed.

The two winning proposals showcase the safe application, practicality, and sustainability of a minimum 80-foot structure that uses mass timber, composite wood technologies, and innovative building techniques. More information on the Competition can be found at: <http://www.tallwoodbuildingcompetition.org/>.



West coast winner of the U.S. Tall Wood Building Prize Competition: A 12-story building with retail, offices, and workforce housing. Photo courtesy of Lever Architecture.

- Hosting a California specific CLT conference to look at the potential for modifying existing mills in California to produce CLT targeted at the need for earthquake resistant retrofitting in that State;
- Continuing engagement and support of the U.S. Tall Wood Building Competition process, now that two winning proposals have been announced;
- Initiating documentation of the mass timber building movement in the United States and creating communication pieces related to CLT and mass timber building systems;
- Exploring ways to engage organizations such as the Whole Building Design Guide;
- Sponsoring an exhibition on Tall Wood with the National Building Museum, starting September 2016 and running for several months. The exhibition will generate a number of outreach materials that Forest Service can use beyond the context of the exhibit itself; and
- Continuing using the Wood Innovations Program as a mechanism to support the expansion of mass timber products in the United States.

**Proposed Actions
FY 2016**

Action	Lead USDA Agency(s)
Provide technical assistance for 475 wood building projects.	Forest Service, in partnership with WoodWorks
Organize and host a national conference on mass timber (including CLT and related technologies).	Forest Service, in partnership with the Forest Business Network

FY 2017

Action	Lead USDA Agency(s)
Provide technical assistance for 525 wood building projects.	Forest Service, in partnership with WoodWorks

FY 2018

Action	Lead USDA Agency(s)
Provide technical assistance for 575 wood building projects.	Forest Service, in partnership with WoodWorks