



## Wood as a Sustainable Material Progress on USDA Directives

### Green Building Background

On March 30, 2011 -- Agriculture Secretary Tom Vilsack announced a new USDA strategy to promote the use of wood as a green building material. The US Forest Service (FS) will be the lead agency in implementing the following goals:

1. **USE:** Preferentially select wood in new building construction in FS and all USDA agencies while maintaining commitment to certified green building standards. USDA will also make a commitment to using wood and other agricultural products as it fulfills President Obama's executive order (E.O. 13514) on Federal Leadership in Environmental, Energy, and Economic Performance.

In carrying out this initiative, FS Chief Tom Tidwell issued a directive (No. 7309.11-2011-1) to all units calling for increased use of locally milled timber in all new agency buildings and facilities. Secretary Vilsack directed the heads of all other USDA agencies to incorporate the FS policy of using domestic sustainable wood products as the preferred green building material.

2. **RESEARCH:** FS will increase its already strong commitment to green building and report to the Secretary ways to enhance the research and development being done around green building materials.
3. **DEMONSTRATION:** Capture opportunities in the FS, USDA and with partners to demonstrate the innovative use of wood as a green building material for all new structures of 10,000 square feet or more using recognized green building standards such as LEED, Green Globes or the National Green Building Standard.
4. **PARTNERSHIPS:** Develop and support partnerships for using wood in federal government, private, and NGO sectors.

### Progress

#### Goal 1: Use of wood in building construction

- A recent FS lifecycle analysis<sup>1</sup> (LCA) found that harvesting, transporting, manufacturing and using wood in lumber and panel products in buildings yields fewer air emissions – including greenhouse gases than resource extraction, manufacturing and using other commonly-used building materials. LCI/LCA provides current information and tools to meet green building codes and standards, and environmental impact information for environmental product declarations (EPDs).
  - EPDs are a type of eco-labelling that document the benefits of locally sourced wood and manufactured wood products. It can be used to compare products on an equal basis.

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<sup>1</sup> Ritter, Michael A; Skog, Kenneth; Bergman, Richard. 2011. Science Supporting the Economic and Environmental Benefits of Using Wood and Wood Products in Green Building Construction. General Technical Report FPL-GTR-206. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory.

- All USDA agencies follow a policy, set forth in the soon to be published USDA Sustainable Buildings Implementation Plan, to select wood and domestic wood products as the preferred green building material for all construction projects. The preference is based on the Forest Products Laboratory's (FPL) LCA findings.
- Direction in the 2011 USDA Strategic Sustainability Performance Plan to use domestically harvested wood products ideally locally sourced and from National Forest System lands wherever practicable and feasible.
- New buildings constructed –
  - Angeles National Forest Supervisor Office, Arcadia, CA
  - Camino Real Ranger Station, Carson National Forest, Penasco, NM
  - Corvallis Forest Science Laboratory and Siuslaw National Forest HQ Office, Corvallis, OR
  - Juneau Forestry Sciences Laboratory, AK
  - Wood Products Insect Laboratory, Starkville, MS; others
- Buildings under design and registered in “Green Globes” –
  - Research Triangle Park Forestry Science & Assessment Center, NC - a \$1.6 million, 8000 square feet facility planned for FY14 will be designed to achieve Green Globes Certification (2 Globes) and feature extensive use of wood instead of masonry. Approximately 45% of the building is expected to be constructed of wood or wood products.
  - The Southern Region is currently on track with the agency's first “Green Globes” project, a renovation of and addition to the Enoree Ranger District Office, located in Whitmire, SC. Construction is scheduled to occur late in 2013 if funds are received. This project will be a wood-framed structure and will incorporate the use of locally-sourced wood, wood decking, wood windows and doors, and wood trim.

## **Goal 2: Enhancing green building and wood use research and development**

- USFS research is now experimenting with new and innovative ways to use smaller diameter timber and leftover branches and limbs for wood products, including nanotechnology development and wood composite product applications.
- Investment in new building materials research at FPL - \$2 million in FY 2012 to implement the Green Building Strategy and priorities. Working to develop wood construction systems for light industrial construction and update building codes to accept these systems.
- Continue enhancing the development and application of LCA.
- Developing wood product standards and code acceptance for use of wood in non-residential construction.

## **Goal 3: Demonstrating innovative uses of wood compatible with green building standards**

- Demonstration projects –
  - [FPL demonstration house](#) in Madison, WI
  - On the campus of [Mississippi State University](#) - The Jackson Community Design Center focuses on the design of housing for urban, inner city locations. The majority of these housing types incorporate a vernacular style using wood frame and siding appropriate to their inner city context.
  - On the campus of [Haywood Community College](#) in Clyde, NC - Partnership with USFS Wood Products Laboratory allowed the college to construct the area's first Habitat for Humanity green home.
- The [Carbon Challenge Baltimore](#) and [Carbon Challenge Providence](#) green building competitions challenge designers to create sustainable cost-effective homes using wood for lower carbon footprints. Designers calculate and submit global warming potential scores and cost calculations, and must seek solutions sensitive to the local urban community; entries are judged against each of these criteria. The Carbon Challenge is sponsored by the USDA FS, the FPL, and APA - the Engineered Wood Association.
- Supporting USDA Biopreferred Program. Senate version of the Farm Bill includes language to support establishing capacity at FPL to evaluate wood based candidate products to expand number of wood based products that qualify under this program. In CY 2012, FPL prequalified an additional 11 billion board feet of wood based products; awaiting applications from producers.

**Goal 4: Develop partnerships in federal government and with private and NGO sectors to advance the use of wood**

- USDA will use its position on the White House Steering Committee on Federal Sustainability to promote wood preference policy across the entire Federal government.
- Outreach with the results of the FPL LCA study on wood construction and ongoing work. Report is available for distribution. We will be following up with training on use of wood with FS engineers in 2013.
- FS officials working with GSA on high-performance building guiding principles. The FS is the USDA representative to the Council on Environmental Quality (CEQ) committee to develop the Guiding Principles for Sustainable Green Buildings for the U.S. Government. Recommended changes that reflect principles in the USDA policy have been submitted to OMB.
- Partnership with U.S. WoodWorks program on education and technology transfer activities with design and building professionals.
- New DOD schools initiative partnership.
- A partnership of government, universities and industry is undertaking research needed to support widespread recognition of wood.

- Continue technical assistance offered to the private, non-profit, and public sector through the Technology Marketing Unit and the Wood Education and Resource Center (WERC).
- WERC partnered with Sustainable Resources Institute, Inc.; Action Floors Systems, LLC, and the University of Wisconsin to conduct a life cycle analysis of solid hardwood floors.
- WERC partnered with University of Tennessee, Center for Renewable Carbon; Woodlife Environmental Consultants; and FPL to develop carbon storage factors for a range of wood products.
- WERC partnered with the University of Tennessee, Forest Products Center and several other partners to conduct a life cycle inventory for hardwood fuel pellets.

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