

A Hardwood Market Report Publication

LEED v4: Another Win for the Hardwood Industry

By Claire T. Getty, LEED AP BD+C
Executive Director
Thompson Appalachian Hardwoods

2013 resonates within the hardwood industry as a year of positive change. Monthly market improvements combined with strengthening demand have set the stage for new global opportunities. An overhaul of the controversial LEED Green Building Rating System, in the industry's favor, is another gold star for hardwoods.

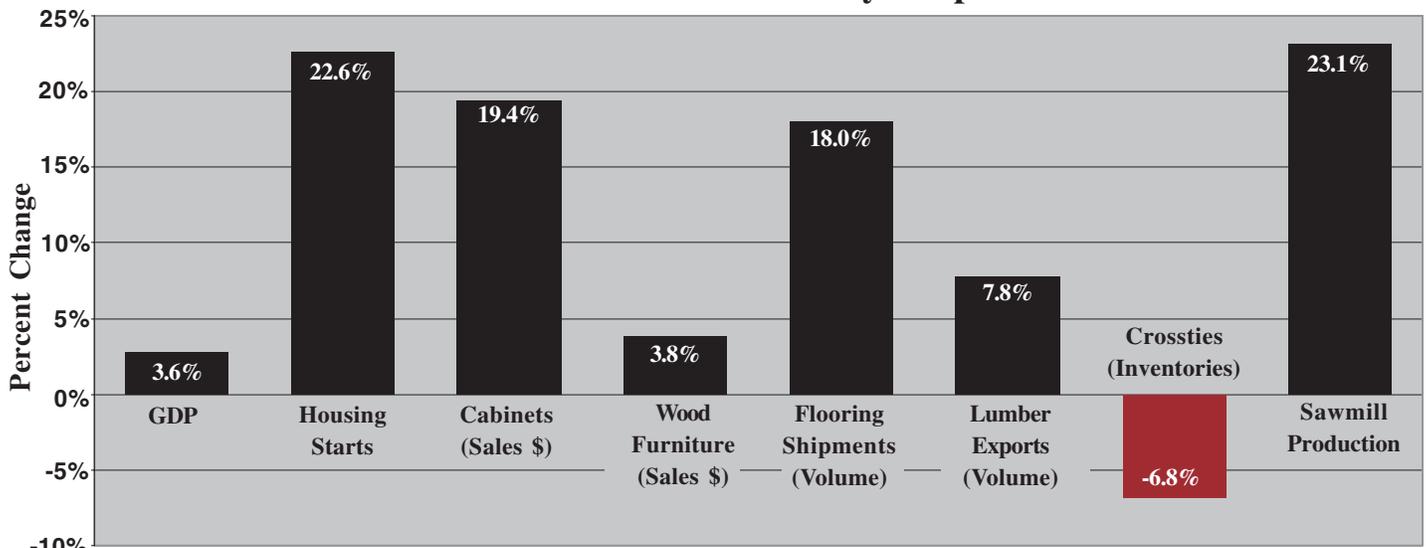
Since its inception in 1998, LEED's dedication to sustainable building practices has given preference to material attributes (i.e. recycled content) instead of focusing on the embodied energy of selected materials and their overall environmental impact. Announced on November 20, 2013, the newest edition of the LEED rating system (LEED v4) promotes transparency in building material selection. The selection criteria for LEED v4 favor data-driven assessments, specifically the inclusion of Life Cycle Assessments (LCAs) and Environmental Product Declarations (EPDs). For the hardwood industry, this means leveling the playing field between hardwood products and commonly-used building materials, such as concrete and steel.

continued page 2

- ✿ Personal and disposable income in the US rose 0.5% in September over August. Personal consumption expenditures gained 0.2% for September, following a 0.3% increase in August and +0.1% in July.
- ✿ The Federal Reserve report on consumer credit shows the total change for September was up 5.4% at an annual rate. Revolving credit declined 3.9%, but nonrevolving credit advanced 8.7%.
- ✿ The US homeownership rate stood at 65.3% in 3Q 2013, - 0.2% from 3Q 2012 but up 0.3% over 2Q 2013.
- ✿ The US unemployment rate held at 7.3% in October. The percentage of individuals unemployed for 27 weeks or longer in October was 41.9% or 4.915 million people.
- ✿ US manufacturing capacity utilization ended October 2013 at 76.2%, up from 76.1% in August and was 1.6% higher than the previous year.
- ✿ In the US, real average hourly earnings increased 0.2% in October from September and 1.3% from October 2012.

© 2013 HARDWOOD MARKET REPORT It is illegal to photocopy, reproduce, sell, publish, broadcast, or transmit this publication in any way, in whole or in part, without the express written permission of the owner.

HMR Business Activity Snapshot™



GDP – 2013 3Q, Second est. Housing Starts – Y-T-D Aug. '13:'12 Unadj. Cabinets – Y-T-D Sept. '13:'12. Furniture – Y-T-D Sept. '13:'12 Unadj. Flooring – Y-T-D Nov. '13:'12. Exports – Y-T-D Sept. '13:'12. Cross ties – Sept. 2013 vs 2012. Sawmill Production – Nov. '13 annual rate vs 12 mo. 2012.

LEED v4: Another Win for the Hardwood Industry ...continued from page 1

LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED)

LEED continues to evolve and adapt alongside the green building movement, setting the standard for sustainable building design and construction that maximizes positive growth and development while minimizing negative environmental impacts. Developed by the U. S. Green Building Council, the LEED Green Building Rating System is a voluntary, market-

driven, consensus-based foundation for the design, construction, operations, and maintenance of high performance, green buildings, and neighborhoods. Current building types include residential, commercial, institutional and neighborhood development. Seven overarching program goals direct decisions and project outcomes for the system, **Figure 1**.

Figure 1: LEED v4 Program Goals

Reduce contribution to global climate change	Promote sustainable and regenerative material cycle
Enhance individual human health	Build a green economy
Protect and restore water resources	Enhance community quality of life
Protect and enhance biodiversity and ecosystem services	

During its 15-year tenure as the United States' leading green building rating system, LEED has undergone several iterations. A constant through each version is the structure of the core credit categories that drive the overall program goals and assign point values based on direct human and environmental benefit. Categories with the highest direct impact on system priorities are given the highest weight, **Figure 2**.

Figure 2: LEED v4 Credit Categories with Point Distribution

Credit Categories	Possible Points
Integrative Process	1
Location & Transportation	16
Sustainable Sites	10
Water Efficiency	11
Energy & Atmosphere	33
Materials & Resources	13*
Indoor Environmental Quality	16
Regional Priority	4
Total Points	104 points

**potential for hardwood industry*

POSITIVE CHANGES

LEED v4 is a major, and somewhat controversial, update to the LEED rating system. Overall foundational changes include increased technical rigor, integrative process, and increased performance thresholds. Previous versions of the rating system weighted points based on doing “less” harm in areas relating to natural resources, energy supply, and human health. LEED v4’s approach emphasizes the consideration of comprehensive and best environmental outcomes and includes a complete overhaul of the Materials and Resources Credit Category.

In LEED 2009, the focus of Materials and Resources Credits was single attributes, such as recycled content, rapidly renewable materials, and certified wood, offering only 3 potential points for wood products. In contrast, LEED v4 recognizes and restructures the above-mentioned traits into comprehensive categories, which focus on overall performance. In total, LEED v4 provides 9 potential points for hardwood products.

Figure 3

LEED v4: Another Win for the Hardwood Industry ...continued from page 2

Figure 3: Comparison of Materials and Resources Credit Category for LEED 2009 and LEED v4

LEED 2009		LEED v4	
Storage and collection of recyclables	R	Storage and collection of recyclables	R
Building reuse – maintain existing walls, floors and roof	3	Construction and demolition waste mgmt. planning	R
Building reuse – maintain interior nonstructural elements	1	Building life-cycle impact reduction	5**
Construction waste management	2	Building product disclosure and optimization – environmental product declarations	2*
Materials reuse	2	Building product disclosure and optimization – sourcing of raw materials	2*
Recycled content	2	Building product disclosure and optimization – material ingredients	2*
Regional materials	2*	Construction and demolition waste mgmt.	2
Rapidly renewable materials	1		
Certified wood	1*		
Total Points	14	Total Points	13

*potential hardwood points **potential of three hardwood points (of allotted five)

LEED 2009

In LEED 2009, the only potential points associated with hardwood products fell into two categories, regional materials (2 points) and certified wood (1 point).

The regional materials credit required either 10% or 20% of permanently installed building materials and products to be extracted and manufactured within 500 miles of the project site. For hardwood products, this requires harvesting timber, milling and drying lumber before shipping to a secondary manufacture for flooring, moldings, cabinets, etc. Regions with a higher concentration of primary and secondary manufacturers benefitted more.

The second credit potential, certified wood, was intended “to encourage environmentally responsible forest management.” In order to ensure this intent, FSC was selected as the only certified forest system. One point was granted for the minimum use of 50% (based on cost) of wood-based materials certified through FSC. These materials included structural framing, general dimensional framing, flooring, sub-flooring, wood doors, and finishes. Furniture could also be used if used consistently in other Materials and Resources credits.

LEED v4

Contrasted with the previous version of LEED (LEED 2009), LEED v4 makes available 9 points for properties of the hardwood industry and its products:

- **Building life-cycle impact reduction** (3 points possible for hardwoods of 5 allotted points)
- **Building product disclosure and optimization – environmental product declarations** (2 points)
- **Building product disclosure and optimization – sourcing of raw materials** (2 points)
- **Building product disclosure and optimization – material ingredients** (2 points).

Building life-cycle impact reduction (3 out of 5 points)

The building life-cycle impact reduction credit intends to “encourage adaptive reuse and optimize the environmental performance of products and materials.” Points are available through four channels. The first three encourage reuse of existing buildings and/or materials while the fourth introduces whole-building Life Cycle Assessments (LCA). This credit requires an LCA of a project’s structure and

LEED v4: Another Win for the Hardwood Industry ...continued from page 3

enclosure that demonstrates a minimum of 10% reduction in at least three of six impact categories, as compared to a baseline building. The six impact categories are global warming potential (greenhouse gases), depletion of the stratospheric ozone layer, acidification of land and water sources, eutrophication, formation of tropospheric ozone, and depletion of nonrenewable energy resources. The LCA must be completed in accordance with ISO 140044.

A comprehensive LCA was introduced, pursued and completed on behalf of the hardwood industry by the American Hardwood Export Council (AHEC). In accordance with the ISO 140000 series, the AHEC LCA complies with the Building life-cycle impact reduction credit by providing necessary information and data for project teams to conduct a whole building LCA. The results of the AHEC LCA provide an independent, science-based platform to compare wood as a building material to other materials, such as concrete and steel, based on the context of environmental impact. This addition to LEED v4 focuses on comprehensive, environmental impact across a building's lifetime.

Building product disclosure and optimization – environmental product declarations (2 points)

This credit category intends to promote the specification of products and materials that, first, have life-cycle information available and, second, have environmentally, economically, and socially preferable life-cycle impacts. One point is awarded for use of at least 20 permanently installed products that have product-specific disclosures, meeting the same requirements as the above-mentioned LCA or environmental product declarations.

A second point is available by using (at minimum 50% of cost) products which demonstrate a below industry average impact in three of the six impact categories. The second point could also be earned by sourcing products that are harvested, manufactured and sold within 100 miles of the project site.

The LCA study conducted by AHEC, once again, is a vital resource to the hardwood industry and its use within the LEED system. From the LCA study, AHEC expanded into American Hardwood Environmental Product Profiles for specific products, such as kiln dried Poplar, Red Oak and Hard Maple. Both the LCA and EPD work meets the requirements of LEED through ISO standards, which require independent critical review and third-party verification. Not only do hardwood products meet the first requirement of having EPDs, hardwood products have a reduced environmental impact as compared to other building materials, such as concrete and steel, giving hardwood products a preferred status.

Building product disclosure and optimization – sourcing of raw materials (2 points)

The building product disclosure and optimization – sourcing of raw materials credit combines and builds on several credits within LEED 2009, namely: recycled content, regional materials, rapidly renewable materials, and certified wood. The overall intent remains the same as other building product disclosure and optimization credits; emphasis is on products with responsible extraction and sourcing procedures. The first point option is attained through raw material source and extraction reporting of at least 20 permanently installed products. Several reporting techniques are accepted.

The second point focuses on leadership in extraction practices, which include the following: extended producer responsibility programs, bio-based materials, certified wood products – specifically FSC or USGBC approved equivalent, material reuse or recycled content. At least 25% of the permanently installed materials must meet the requirements set by these leadership programs. This change opens the door in a variety of ways for certified and non-certified hardwood products. It is necessary to pursue the language “FSC or approved equivalent” to get better clarification from USGBC.

LEED v4: Another Win for the Hardwood Industry ...continued from page 4

Building product disclosure and optimization – material ingredients (2 points)

The intent of this point continues the pursuit of life-cycle information and preferred impacts but expands to include chemical ingredients and the minimal use of harmful substances. Two points can be achieved through three options: material ingredient reporting, material ingredient optimization, and product manufacturer supply chain optimization.

While primary hardwood lumber manufacturers use minimal chemicals, secondary manufacturers can build upon the work by AHEC to develop ingredient disclosure information meeting the requirements of LEED v4.

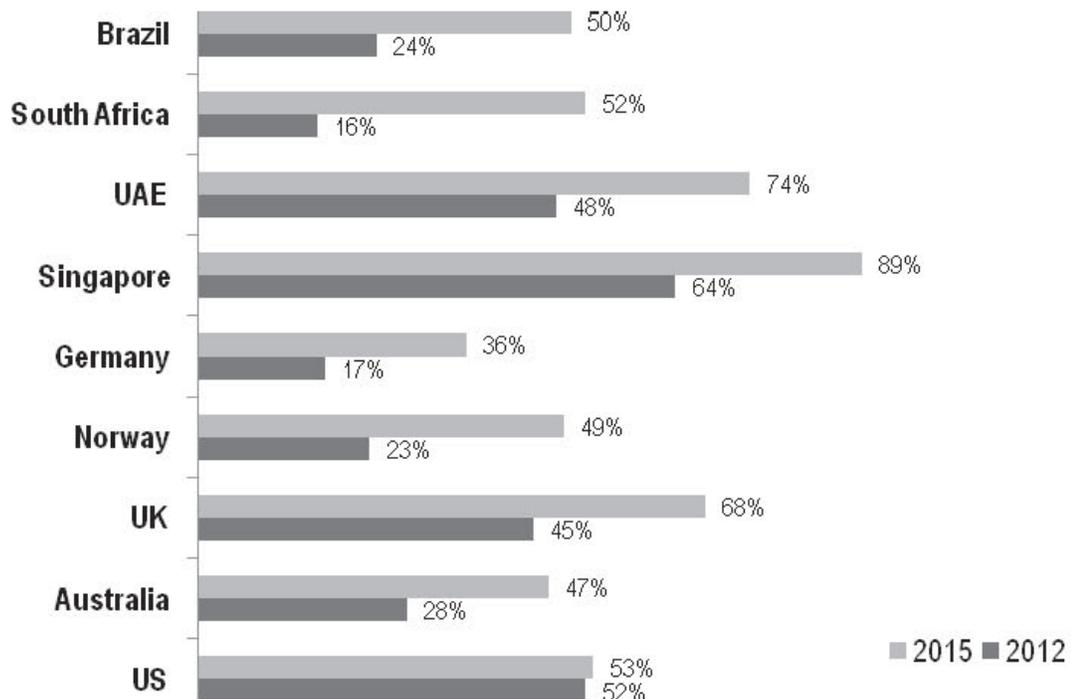
WHY DOES THIS MATTER?

As green building continues to grow, so does the hard-

wood industry's need for engagement, research, and education on the sustainable attributes of hardwood products. Green building experienced growth from \$10 billion in 2005 to \$78 billion in 2011. By 2016, the number is anticipated to reach between \$200 and \$250 billion. Residential green construction, specifically, is expected to grow 22-25% in 2013 and up to 29-38% by 2016 – a potential \$89 to \$116 billion sector. One third of all homebuilders in the U.S. will be focused on green residential projects by 2016.¹

Green building is not only gaining construction market share in the United States but around the world. SmartMarket Report finds a growing number of firms working on green building projects, particularly new commercial construction and existing building retrofits. More firms are working on green buildings, the overall volume of such projects is growing and diversity in locations is expanding². **Figure 4.** Firms include design, engineering, and development groups.

Figure 4: Percentage of Firms with More than 60% of Green Work (2012 and expected 2015)



LEED v4: Another Win for the Hardwood Industry ...continued from page 5

CONCLUSION

Green building is an ever-improving, permanent fixture in the global marketplace. While the LEED Green Building Rating System is not the only program, its growing presence in the United States and globally make it relevant to the hardwood industry. The latest release, LEED v4 is a positive step for the system and a step in the right direction for the hardwood industry. LEED v4's emphasis on life-cycle thinking with the inclusion of LCAs and EPDs provide comprehensive environmental impact analysis, through changes in the Materials and Resources Credit Category, and realign the system. This enables project designers to choose optimum sustainable products. Using hardwood products alone will not generate points for LEED projects. However, the inherent, positive

environment profile of hardwood makes it an ideal building material, and the work already completed by industry leaders puts it ahead of evolving green building standards. Overall, the changes to the LEED rating system are another win for the hardwood industry and should be celebrated through advocacy to your local architect, designer, or USGBC chapter. Moving forward, the hardwood industry must continue to support the research and development of hardwood products as premium, environmentally-sound building materials in an ever-growing, green-focused, global building supply chain.

1 2013 Dodge Construction Green Outlook Report, McGraw Hill Construction

2 World Green Building Trends SmartMarket Report (2013), McGraw Hill Construction

Bio:

Claire Getty is the Executive Director of Thompson Appalachian Hardwoods in Huntland, Tennessee. Claire holds dual master's degrees in City and Regional Planning and Architecture with an Urban Design emphasis from The Georgia Institute of Technology. Additionally, Claire earned a professional degree in Landscape Architecture from the University of Georgia as well as an Environmental Ethics Certificate. She has been a LEED accredited professional since 2009, practicing green building and design. Claire has worked on projects of all scales from single-family residential homes and subdivisions to city-wide livable community initiatives. Because of her educational and professional background which are heavily rooted in environmental design, Claire is an advocate for communicating the value of hardwood as an environmentally-responsible building material and promoting its use in green construction. Claire enjoys working in her family's business manufacturing high-quality hardwood lumber.

Contact: Claire@thompsonappalachian.com

Website: www.thompsonappalachian.com

New Boiler Requirement for Lumber Drying Operations

Adam Taylor, Extension Wood Products Specialist, University of Tennessee

On March 21, 2011, the Environmental Protection Agency (EPA) issued a new rule to reduce emissions of hazardous air pollutants from existing and new industrial, commercial, and institutional boilers. Final changes to the rule were put in place on February 1, 2013. These “boiler MACT” regulations apply to a wide range of boilers, including most boilers used by lumber drying operations.

The rule is complex and detailed, and interested readers are recommended to get complete and authoritative information from the EPA; however the following summary may be useful to get started.

“Area source” boilers

An “area source” facility has the potential to emit less than 10 tons per year of a single hazardous air pollutant (HAP) or less than 25 tons per year of any combination of HAPs. An example of a HAP is mercury but there are many others. “Major source” boilers have the potential to produce more pollution than an area source and are regulated differently.

Most lumber drying operations include boilers that burn wood to produce steam, heat, and/or hot water, which is then used to heat and humidify the kilns. The majority of these boilers would fall into the “area source” category.

Types of area source boilers

EPA is regulating area source boilers based on three components: the type of fuel, the size of the boiler, and whether the boiler is new or existing. These elements are defined as follows:

Fuel type

- Wood residues are considered *biomass fuel*. This includes the fuels normally used in lumber drying operations such as sawdust, bark, and hog fuel. Natural gas-fired boilers are exempt from this rule.

Boiler size

- Large area source boilers have a heat capacity equal or greater than 10 MMBtu/hr
- Small area source boilers have a heat capacity less than 10 MMBtu/hr

New or existing

- An existing boiler commenced construction or reconstruction of the boiler on or before June 4, 2010,
- A new boiler commenced construction or reconstruction of the boiler after June 4, 2010.

Once the boiler type and fuel are identified, the following actions may be required:

- Notifications
 - Initial Notification – This notifies the EPA that you have a boiler that is covered by the regulations. This notification is due by January 20, 2014. Examples of a notification form, and addresses to send them to, can be found at <http://www.epa.gov/boilercompliance/>
 - Notification of Compliance Status (NOCS) - This notifies the EPA that a tune-up, energy assessment and/or boiler test was conducted (as appropriate). The first of these notifications is due to EPA by July 19, 2014. Examples of the form and instructions for electronic submission can be found at the boiler compliance website listed above (<http://www.epa.gov/boilercompliance/>)
- Tune up - A boiler tune-up involves relatively straight-forward actions such as
 - Inspection, and repair if needed, of the boiler system
 - Inspection and adjustment of the flame and fuel/oxygen mix
 - Measuring the oxygen and carbon monoxide emissions before and after the tune up. The tune up should be documented carefully, such that the NOCS form described above can be completed. Tune ups are required every two years (or every five, if an oxygen trim system is in place)
- Energy Assessment – Large, existing boilers are required to have an assessment in addition to a

New Boiler Requirement for Lumber Drying Operations, continued from page 7

tune up. The assessment involves describing the complete boiler system and identifying opportunities for energy efficiency improvement. The assessment must be completed by a ‘qualified energy assessor’, who is someone with good working knowledge of boiler systems. More information on the Assessment can be found at <http://www.epa.gov/airtoxics/boiler/imptools/SummaryEnergyAssessmentsAreaSourceBoilersFinal.pdf>

- Testing – Large, new biomass (wood)-fired boilers are required to be tested for their performance and emissions of particulate matter. Details of the testing and examples of the compliance forms can also be found at <http://www.epa.gov/boilercompliance/>

Final Note

The above is only a partial summary of some key points of the new rule, particularly as they relate to wood-fired boilers used in lumber drying. Complete details can be found at the EPA’s website. The following pages may be particularly useful:

- Small Entity Compliance Guide for Area Source Boilers: <http://www.epa.gov/airtoxics/boiler/imptools/ArearesourcesmallbizcomplianceguideMar2013.pdf>

- Industrial/Commercial/Institutional Boilers and Process Heaters: <http://www.epa.gov/airtoxics/boiler/boilerpg.html>

A summary of the requirements, with dates:

Action	Deadline			
	Existing Boilers (on or before June 4, 2010)		New Boilers	
	Small (<10mmBTU/hr)	Large	Small	Large
Initial Notification	January 20, 2014		120 days of start-up	
Tune up	March 21, 2014 And every two years after (5 years if O ₂ trim system installed)		Every two years (5 years if O ₂ trim system installed)	
Energy Assessment	n/a	March 21, 2014	n/a	n/a
Test	n/a	n/a	n/a	At start-up
Notification of Compliance Status	July 19, 2014 And March 1 of years following tune-ups		March 1 of year after action	

Adam Taylor, Extension Wood Products Specialist, University of Tennessee. Voice: (865)946-1125; Email: Adamtaylor@utk.edu



Website: www.hmr.com ~ Email: hmr@hmr.com
 P. O. Box 2633, Cordova TN 38088-2633
 Phone: 901-767-9126 ~ Fax: 901-767-7534