One thing we have all learned about the environmental direction in the construction industry; it is a moving target. The end goal is noble and good for all of us but the bureaucracy and detailed expectations are somewhat mind numbing. The architectural wood door industry is prepared for the transition to LEED v4. In this article, we’ve laid out basic information and actions that are being taken in the wood door industry to allow you, the distributor, to know what to watch for in October when LEED v3 transitions to LEED v4.

The first step in meeting the requirements for LEED v4 was for our industry to create our Product Category Rules (PCR). This document defines what an architectural wood is. A group of representatives from some of the major door manufacturers worked as a committee with NSTM and the Window and Door Manufacturers Association (WDMA) to develop this standard, which has been approved and is available on the WDMA website, www.wdma.com. With this document set as the standard, the door manufacturers now have an industrywide baseline to work from.

Timing
Project registration under LEED v3 was to end in June 2015 when LEED v4 formally became active, but an extension has allowed it to be used until October 2016. This transition period allowed architects to specify jobs in either LEED rating system and is largely the result of several new credits which require the establishment of new standards before manufacturers can work toward compliance. This transition period has caused some confusion if the specific LEED version was not clearly defined in the specification. Additionally, across all industries, manufacturers are in various stages of conformity to the new LEED v4 requirements as they face the technical and financial challenges of compliance to evolving new and more rigorous standards.
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Format
LEED v4 is a major departure in format from LEED v3. For wood doors, while LEED v3 focused on specific material and resource credits like certified wood, recycled content and low-emitting materials (the no added urea-formaldehyde credit), LEED v4 is focused on building product disclosure and product performance optimization. At the core of the new materials and resource credits are requirements for product Life Cycle Assessment (LCA), product transparency and product performance enhancements targets.

The new credits require Environmental Product Declarations (EPDs) and disclosure regarding material sourcing and material ingredients. The credit for low-emitting materials also has new performance requirements and the regional manufacturing credit has changed to promote sourcing of products and materials within 100 miles of the project instead of 500 miles.

Credit: Building Product Disclosure and Optimization – Environmental Product Declarations
A lot happens before a product arrives at a jobsite. Raw materials must be produced, extracted from the ground or harvested, transported to component manufacturers and made into components to be shipped to the primary manufacturer of the product where the product is fabricated and packaged for final shipment.

Along this pathway a lot of material, energy and resources are consumed and waste is generated and disposed of, or recycled. A product Life Cycle Assessment (LCA) measures all of this activity and evaluates a product’s overall environmental impact across all stages of its “life.”

ISO standards provide the guidelines for how an LCA is conducted. There are three scopes for LCA evaluations:

- Cradle to Gate – A LCA inclusive of material sourcing and the manufacturing process through to the factory gate, i.e., before it is transported to the consumer. The use and disposal phases of the product are usually omitted.
- Cradle to Grave – A LCA of material sourcing and the manufacturing process that tracks the life of a product from the point of creation until the disposal of the product at the end of its usable life.
- Cradle to Cradle – A design protocol that advocates the elimination of waste by recycling a material or product into a new or similar product at the end of its intended life, rather than disposing of it.

LCAs come in many different formats based on the product type, the service assisting the manufacturer in generating the LCA and the software program used to compile and calculate the data. For this reason, LEED v4 only gives 25 percent credit to products for which the manufacturer has performed an LCA; 50 percent credit for products that have an industry generic LCA (a LCA generated by industry associations to reflect and average environmental impact for a common product type produced by multiple manufacturers); and 100 percent credit for products with a product-specific third-party certified Environmental Product Declaration (EPD). An EPD is a commonly formatted summation of LCA data that allows for easier review of a specific product’s impact data.

By giving full credit for a product specific EPD, it is clear that LEED v4 is driving manufacturers toward certifying products to this more comprehensive level of disclosure in a user-friendly format. LCA/EPDs are time consuming and costly to produce, so you will likely find manufacturers are at different degrees of compliance.

LEED v4 also offers an additional credit option to the project if 50 percent of the products (by cost) are third-party certified indicating they have optimized performance to a level better than industry average in at least three impact categories. Some of these categories, measured by the LCA are acidification, global warming, energy consumption and ozone depletion.

Credit: Building Product Disclosure and Optimization – Sourcing of Raw Materials
Building on the above LCA data requirements, this credit encourages project teams to use materials that have been extracted/harvested and sourced in a responsible manner and that have more favorable and verifiable environmental, economic and social impacts.

Products can contribute to this credit if the manufacturer has either a self-declared corporate sustainability report (50 percent credit), or a third-party certified corporate sustainability report (100 percent credit). For disclosure, this credit requires
Credit: Building Product Disclosure and Optimization – Material Ingredients
The Material Ingredients credit also promotes LCA product documentation while rewarding the use of products whose chemical ingredients minimize the use and production of harmful chemicals.

Credit options for transparency and disclosure of product contents are:

• Manufacturer Inventory – a published, publically available content inventory for the product that inventories all ingredients by name and Chemical Abstract Service registration number (CASRN)
• May withhold trade secret or intellectual property ingredients provide the role, amount and GreenScreen benchmark as defined in GreenScreen v1.2 is disclosed
• Product has a published Health Product Declaration (HPD) with full disclosure of known hazards in compliance with the Health Product Declaration open standard
• Product has been certified at the Cradle to Cradle v2 Basic Level or Cradle to Cradle v3 Bronze level

Projects also have the ability to achieve an additional credit if they are able to provide documentation that products are optimized for material ingredients by using one of the following pathways:

• Products have been assessed to GreenScreen v1.2 Benchmark with fully inventoried chemical ingredients to 100 ppm and no Benchmark 1 hazards. Based on assessment level products may qualify for 100-150 percent contribution to credit by cost.
• Cradle-to-Cradle certified products contributing 100-150 percent to credit by cost based on Cradle-to-Cradle assessment level.
• International Alternative Compliance Path – Reach Optimizations. Products and materials that do not contain substances that meet REACH criteria for substances of very high concern. Product contributes 100 percent of its cost to the credit qualification.

The Material Ingredient credit has an additional compliance path which gives credit for supply chain optimization. Products must be:

• Sourced from manufactures with robust safety, health, hazard and risk programs which at minimum document 99 percent (by weight) of the ingredients to make the product, and
• Are sourced from manufacturers with third-party certification that verifies their supply chain and have multiple communication, identification, stewardship and reporting mechanisms in place for health, safety, exposure information regarding product chemical ingredients.

There are many new terms, potential certification and compliance pathways for material ingredients that manufacturers will be becoming familiar with and working toward product certifications. It will be up to each manufacturer to determine the best pathway for their product, but HPDs are a primary reporting tool that architects are already asking for on their projects. Version 2 of the HPD has been released so the wood door industry is now able to move forward with gathering the required documentation needed to meet this stringent standard.

Credit: Low Emitting Materials
The need for composite wood and agrifiber products to be manufactured with no added urea-formaldehyde (NAUF) has long been a requirement of LEED v3, prior LEED versions and other green building rating systems. This is a prescriptive requirement limiting the type of resin that can be used in these products in an effort to minimize formaldehyde off-gassing and improve indoor air quality.
THE CHANGES IN LEED V4 REQUIRE A PARADIGM SHIFT IN HOW WE LOOK AT THE PRODUCTS AND MATERIALS WE USE IN OUR BUILDINGS AND HOW WE DOCUMENT THE PRODUCTS WE MANUFACTURE AND SELL.

In LEED v4 this requirement is changing and requires products to meet the requirements defined by the California Air Resources Board (CARB), Airborne Toxic Measure to Reduce Formaldehyde Emissions from Composite Wood Products Regulation. CARB has a maximum allowable formaldehyde emissions level for composite wood products called CARB Phase 2.

CARB also has more stringent qualification levels with lower formaldehyde emission levels called ultra-low-emitting formaldehyde (ULEF) and no added formaldehyde (NAF, not to be confused with NAUF – no added urea-formaldehyde). LEED v4 has adopted ULEF and NAF requirements. Composite wood products documented to meet CARB requirements for ULEF or NAF levels will qualify for the Low Emitting Materials credit.

It is important to note that some projects or specifications will still call for NAUF. Other sustainable building standards such as The Living Building Challenge call for NAF. It is important to check with your manufacturer when you come across specific resin requirements to ensure their products are compliant. Some resins may contain added urea-formaldehyde, but also meet the CARB ULEF performance level adopted by LEED v4. These resins, however, would not meet a NAUF specification requirement.

Regional Priority
Some LEED v4 credits, such as EPDs, Sourcing of Raw Materials and Material ingredients offer additional credit of up to 200 percent of the product contribution (by cost) if the product is sourced within 100 miles of the project site. Prior LEED credits for regional materials were hard for wood doors to contribute to, even though they allowed product to be sourced from within 500 miles. The regional priority credit is no different. Projects often look to earn this credit from material commonly sourced locally, such as cement.

Summary
A number of manufacturers in our industry are ready to assist you with your LEED v4 needs and some manufacturers are well on their way to having their documentation completed. As a distributor, it would be in your best interest to check with your vendor of choice to be sure they meet the requirements for your project.

To assist the distributor here is a list of key acronyms and terms to watch for when reviewing specifications. If you see these terms, the architect is requesting LEED v4 for the project:

- Health Product Declaration (HPD): A voluntary standard that specifies how product ingredients should be listed
- Product Category Rule (PCR): Defines which data is used in a life cycle analysis (LCA) and how the data is collected and reported. There can only be one PCR for any product category.
- Life Cycle Assessment (LCA): Analyzes data specified in the PCR, measures inputs, outputs and environmental impacts across product lifespan from cradle to grave.
- Environmental Product Declaration (EPD): Summarizes data collected by the LCA as specified by the PCR, enabling comparison of environmental impacts across product category.

Every day we see more evidence of significant environmental issues. The built environment is one of the largest contributors to the negative environmental impacts that we must work to correct. LEED is making significant progress in reversing these negative impacts and to continue doing so, LEED must continue to evolve. The changes in LEED v4 require a paradigm shift in how we look at the products and materials we use in our buildings and how we document the products we manufacture and sell. This being said, it will also not be easy and at times will be very confusing. The evolution of LEED is a moving target and just when you think you have a handle on it, it takes a big leap in a new direction. There is a lot to learn with LEED v4, so take it in stride. There is always opportunity in the confusion.

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