FSC® Chain of Custody, LEED®, and Certified Architectural Wood Doors

The environmental movement within the building industry continues to gain momentum. Through the efforts of industry groups and their 'green' building programs, such as the United States Green Building Council (USGBC), there's a growing emphasis on environmentally responsible designs and materials including framing, flooring, furnishings and doors. This demand is evident in specifications calling for building products and materials made from wood that has been certified as having been grown, harvested and produced in an environmentally responsible manner. In this special report, VT Industries reviews the technology and procedures required to deliver architectural wood doors that comply with architectural specifications for certified materials.

Introduction

Today, wood door manufacturers are responding to the growing trend in the direction of sustainable design, which is synonymous with "green building."[i] Even more growth is forecasted in the coming years. A 2009 report from McGraw Hill states, "By 2015, MHC estimates 40%-48% of new nonresidential construction by value will be green. This would equate to a $120 billion - $145 billion opportunity based on MHC's five-year construction market forecast."[ii]

According to the California Energy Commission, "Sustainable buildings are not a new style of construction—they represent a change in how we think about, design, construct and operate buildings. Sustainable and green buildings use 'off-the-shelf materials and equipment' and can be very compelling to the architect, builder and owner."[iii]

The Commission explains, "Sustainable buildings cost less to heat, cool and light. That means lower operating costs for the owner. Sustainable buildings have shown improved comfort and performance for the occupants. That translates into higher sales prices and rents for the builder and developer."[iii]

"Sustainable buildings produce less pollution, because they use less energy. They wisely use natural resources in their construction by lowering the consumption of building materials. Most importantly, they are healthier spaces to live and work." [iii]

Forest certification

Sustainable design includes efficient use of natural resources, including products originating in forests that have been certified as sustainably well-managed by an independent, third-party certification organization. [iv]

Currently, four forest certification systems operate in North America:[v]

- The Forest Stewardship Council (FSC®) founded in 1993 by representatives from environmental and conservation groups, the timber industry, forestry professionals, community forestry groups, and forest product certification organizations from 25 countries.
- The American Tree Farm System, representing the private, non-industrial forests in the U.S.
- CSA International, serving Canadian industrial companies and some smaller, private landowners.
- Sustainable Forestry Initiative (SFI) Program, which focuses on industrial forests in the U.S. and Canada.

FSC certification has become the most widely accepted system for many architects specifying certified wood doors.[vi] Under this system, independent, third-party certifiers, accredited by the FSC, conduct comprehensive assessments of forest operations against three main standards: environmental responsibility, social benefits, and economic viability of forest management.[vii]

According to FSC, "If the forest operations are found to be in conformance with FSC standards, a certificate is issued, enabling the landowner to bring product to market as 'certified wood,' and to use the FSC trademark logo."[viii]

Two organizations accredited by the FSC to certify forest management operations in the U.S. are the Rainforest Alliance's SmartWood Program and Scientific Certification Systems (SCS). [iv]

The forest certification movement is being driven by architects, specifiers, and their clients, including:

- Federal agencies such as the GSA, Navy, Defense Department, and U.S. Postal Service.
- Municipalities such as Seattle, San Francisco, Portland, and Los Angeles.
- Major universities such as Duke University, Yale University, University of Florida, and Arizona State University.
- Major retailers such as The Home Depot, Lowes, and IKEA.

- National and international forest owners and manufacturers of wood products.

Building Certification Programs

The trend toward adoption of green building programs is being driven by private companies, universities, and government agencies. Designers are encouraged to use FSC certified wood products and are eligible for credit under several of these programs, including U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED®) system, Collaborative for High Performance Schools (CHPS), and the Green Building Initiative's Green Globes®.

The LEED system is used by private industry for commercial buildings including offices, hospitality, retail, and institutional construction projects (e.g., schools, libraries and churches). All new commercial buildings, and hotel and high-rise residential buildings, are eligible to be considered as a LEED building. The LEED system was developed and is administered by the U.S. Green Building Council (USGBC), which is a national nonprofit organization based in Washington, D.C.[ix]

The Green Building Initiative (GBI) is a not-for-profit organization whose mission is to accelerate the adoption of building practices that result in energy-efficient, healthier and environmentally sustainable buildings by promoting credible and practical green building approaches for residential and commercial construction. Developed by GBI, Green Globes is a revolutionary green building guidance and assessment program that offers an effective, practical and affordable way to advance the overall environmental performance and sustainability of commercial buildings.[x]

The Collaborative for High Performance Schools (CHPS) was founded in 1999 as a collaboration of California's major utilities to address energy efficiency in schools. The program quickly expanded to address all aspects of school design, construction, and operation. Since, CHPS criteria has been developed and implemented by 11 states.[xi]

LEED and FSC

LEED building rating systems are by far the most adopted green building programs, especially for government projects. According to USGBC's website, "Various LEED initiatives, including legislation, executive orders, resolutions, ordinances, policies, and incentives, are found in 44 states, including 243 localities (168 cities, 42 counties, and 33 towns), 34 state governments (including the Commonwealth of Puerto Rico), 14 federal agencies or departments, and numerous public school jurisdictions and institutions of higher education across the United States."[xii]

The only certified wood accepted at this time by LEED building systems is FSC. Recently, USGBC has held several public comment periods to review the acceptance of other sustainable forestry programs. This has lead to several proposals, along with numerous public comments and letters, including letters from government officials to change the LEED criteria. In the end, USGBC membership will vote to change the rating system and decide the outcome, according to a message from USGBC President, CEO, and Founding Chair, Rick Fedrizzi.[xiii]

In April 2008, the USGBC released revisions to documentation requirements for certified wood credit, MR 7 for LEED for New Construction, under its LEED rating systems. This change included that all vendors, companies who invoice FSC products to contactors and sub-contractors, must be FSC Chain of Custody (COC) certified. The documentation revision was updated to sync LEED and FSC requirements and eliminate confusion associated with the differences.[xiv]

Because of these changes, door distributors, who are not installing the doors, are now required to hold a valid FSC COC certificate if they wish to assist with certified wood credits for commercial and residential LEED projects. Installing door distributors are not required to have FSC COC certification, as they would not fall under the definition of a vendor.[xv]

Achieving FSC Chain of Custody Certification

In order for an architectural wood door to carry an FSC claim or on-product label, the door's manufacturer must be certified by one of the Council's accrediting agencies. That certification process involves a thorough assessment of the manufacturing facility to establish a "COC," or paper trail, as well as a physical trail from the finished wood doors all the way back to the certified forest.[vi]

Certification of architectural wood door manufacturers and distributors fall under the "FSC Standard for COC." FSC COC is an information trail about the path taken by products from the forest, or in the case of recycled materials, from the reclamation site to the consumer including each stage of processing, transformation, manufacturing, and distribution where progress to the next stage of the supply chain involves a change of ownership.[xvi]

The standard defines and addresses the basic elements of a COC management system [xvi]:

- Quality management: responsibilities, procedures, and records
- Product scope: definition of product groups and outsourcing arrangements
- Material sourcing: material specifications
- Material receipt and storage: identification and segregation
- Production control: control of quantities and determination of FSC claims
- Sales and delivery: invoicing and transport documentation
- Labeling: application of FSC labels on product and labeling thresholds

All of these areas must be addressed in order for an organization to achieve its certification, starting with Quality Management. This section requires assignment of a main point of contact for the organization's certification. This representative is responsible for developing detailed control procedures and training responsible staff on each requirement of the standard.[xvi]

Recordkeeping and tracking of materials is a large part of these procedures or work instructions. Records must be kept for training, products purchased, inventory, supplier invoices, and shipping documents, sales, company invoices and shipping documents, and label approvals. These documents must be kept for a minimum of five years.[xvi]

The certification process begins with the submittal of an application, along with your COC procedures, to an accredited FSC certifier. Once received, the certifier will schedule an evaluation audit to assess your compliance with the FSC COC standards that apply.

Evaluation Audit

There are two types of evaluation audits depending on an organization's operation: desk audits and on-site audits. On-site audits are required for door manufacturers and distributors who stock FSC doors. Desk audits are available for distributors who are not taking physical possession of FSC doors and having doors shipped directly to the job site.

During an on-site audit, COC evaluation of a company's inventory control or system of segregation is required. The evaluator must verify that certified wood inputs and products are segregated from non-certified products from the time they arrive at the manufacturer's receiving dock through product assembly and shipping, including the paper trail as well. This is done via a walkthrough of the applicants facilities, during which the auditor reviews control documentation and conducts interviews with staff.[V]

At one manufacturing plant, incoming certified wood cores are stamped, upon review of shipping documentation for FSC claim, with a green receiving date on each core bundle. Each bundle is then stored in a dedicated area designated by green markings on the floor and signage until door assembly gets underway. [V]

Desk audits are conducted over the phone and via email and fax. Interviews are conducted with responsible staff, and documents are reviewed without the need for a site visit, subsequently lowering the certification cost.

The COC assessment process consists of a one-day audit with the complete process taking anywhere from six to eight weeks. It is concluded when the company signs a certification agreement.[xvii]

In addition to the initial evaluation, yearly audits are conducted and certification costs applied. FSC requires annual auditing for COC certification to continue each year. Audits are performed to verify implementation of the systems in place for tracking/handling, as well as to continue communications with your organization.[xviii]

FSC Certified Components

In order for architectural wood doors to have an FSC claim, all wood components must be FSC certified or meet 'Controlled Wood' standards. Agrifiber and mineral components are exempt from COC control requirements. These components are also excluded from FSC claim calculations, as they do not fall under the FSC's definition of 'virgin material'.[xvi]

FSC certified core, stile, rail, and crossband materials are all currently available for manufacturing wood doors. These materials hold a 'FSC Mixed Credit' or 'FSC Pure' claim; both are considered 100% FSC inputs for door production per COC standards. Veneers are available as either Controlled Wood or FSC Pure and subject to availability. High-pressure decorative laminate (HPDL) face materials are currently unavailable as FSC certified; however, manufacturers have received minor component derogation because of this lack of supply. Thus, they may be excluded from FSC claim calculations upon approval.

FSC Mixed Credit materials are commonly supplied by composite wood manufacturers who have been certified to sell a percentage of their products with an FSC Claim. This percentage is calculated using the amount of FSC wood in the production of their final product. For example, if 25% of the wood inputs for a particleboard manufacturer are 100% FSC, then the company can sell 25% of the products produced as FSC Mixed Credit.[xvi]

FSC Pure materials claims are, by and large, associated with wood veneers and hardwood edges. These door components come from FSC certified forests. Composite wood products may qualify for FSC Pure designation if all wood fiber or chip inputs are FSC, but most are produced under the credit system, using a mix of certified and Controlled Wood.

Controlled Wood

In 2009, COC certificate holders were required to meet *FSC Standard for Company Evaluation of FSC Controlled Wood* for all non-FSC certified wood materials. This standard is for use by FSC certified companies aiming to avoid sourcing illegally harvested wood, wood harvested in violation of traditional and civil rights, wood harvested in forests where high conservation values are threatened by management activities, wood harvested in forests being converted to plantations or non-forest use, and wood from forests in which genetically modified trees are planted.[xix]

There are three ways a FSC COC company can control its non-FSC certified wood sources:[xx]

1. Purchase wood from forest enterprises that have been verified by an FSC accredited Certification Body to meet the requirements of FSC-STD-30-010 *FSC Controlled Wood Standard for forest management enterprises;*
2. Purchase FSC Controlled Wood from suppliers holding a valid FSC COC certificate which includes an FSC Controlled Wood registration code; and
3. Internally verify its wood sources according to the requirements of FSC-STD-40-005 *Company evaluation of FSC Controlled Wood.* Compliance with this standard has to be audited by an FSC accredited Certification Body and the company will then receive an exclusive FSC Controlled Wood registration code. This is only an option for companies who can trace wood back to its origin.

Tracing wood back to the forest of origin is very difficult for door manufacturers. Verification requires transport and proof of purchase documentation.[xiv] This information is not available to manufacturers, due to their location in the supply chain.

Manufacturers can purchase wood veneer and edge materials from certified suppliers labeled as FSC Controlled Wood. These veneers are subject to availability, similar to FSC certified veneers. Veneers labeled as FSC Controlled Wood are less costly than certified veneers. Specifying controlled faces and edges has a minimal effect on a FSC claim of a door, as these materials are a small percentage of the construction by weight or volume.

FSC Claims and On-Product Labels

FSC certified organizations are required to follow COC standards for identifying products sold with FSC claims. Each line item must clearly state the associated FSC claim on all invoices and shipping documentation.[xvi] Door manufacturers most often use the 'Percentage System' for calculating claims.

The 'Percentage System' is used when an organization incorporates a mix of FSC and non-FSC material for its products. Percentage claims are calculated by comparing the total FSC material inputs to the total virgin material inputs. Input quantities can be calculated by weight or volume. Virgin material is defined by the COC standard as, "Primary (i.e., non-reclaimed) material originating in forests or plantations."[xvi]

For example, a door composed of a FSC Mixed Credit particleboard core; 70 pounds, Controlled Wood Veneer and Edges; 3 pounds, FSC Mixed Credit structural composite lumber (SCL) stiles, rails; 7 pounds, high density fiberboard (HDF) crossbanding; 20 pounds, would have an FSC claim of 'FSC Mixed 97%'.

This is computed as follows, FSC inputs (70 + 20 + 7 lbs) / Virgin Materials or Wood (100 lbs). **This door would have a 'FSC Mixed 97%' claim.** FSC Mixed Credit components are considered 100% FSC certified materials and Controlled Wood materials are not FSC certified.

If you replace the FSC Mixed Credit particleboard with a wheat-based agrifiber core in the above scenario, the core would be excluded from the claim calculations. This door would have a 'FSC Mixed 90% claim. FSC inputs are 27 pounds (Stile, rails, and crossband) divided by total wood; 30 pounds.

Stating FSC claims on invoices and shipping documentation is required for COC validation as a product moves from manufacturer, to distributor, to end user. Distributors use invoice materials to confirm orders were received as FSC certified. These FSC claims are then transferred onto their invoices and shipping documentation, if taking physical possession. Stocking distributors use packing slips to identify purchased products are correctly supplied as FSC certified and segregated per FSC requirements in their facilities.

Door products are eligible for on-product labeling under the Percentage System when a FSC claim is greater or equal to 'FSC Mixed 70%'. These labels will read 'FSC Mixed Sources'. The FSC COC also requires "The *organization* shall ensure that products sold with an *FSC claim* do not carry any labels from other *forestry conformity assessment schemes*."[xvi]

MR 7 - Certified Wood Calculations

LEED requires products to be invoiced with valid FSC claims from a certified distributor to assist Certified Wood credit. LEED NC MR credit 7 states, “The entire product must be FSC-certified, Pure, Mixed (NN) %, or Mixed Credit to contribute towards the credit threshold for MR Credit 7. For example, a product that includes multiple wood components, like a door, the entire product must be FSC certified. The door cannot be labeled, or claim, that only the door core is FSC certified.”[xxi]

A minimum of 50% of wood-based materials, based on cost, must be FSC certified for a project to achieve a point for MR Credit 7. For assembled products, this is calculated by taking the cost of the FSC material divided by the cost of the new wood (i.e., not reclaimed, salvaged, or recycled) materials in a door. FSC and new wood values are calculated as a percentage of the product by weight or volume.[xxi]

For example, using the previous agrifiber core door example with a price of $100 would result in the following credit assistance. The FSC certified value would equal $27 (27 lbs x $100). The new wood value would be $30 (30 lbs x $100). Based on these figures and the above equation, 90% of the new wood is FSC certified. Note, this is the same percentage as the previously stated FSC claim.

Specification Guidelines

McGraw Hill’s *Green Outlook 2009* reports, “FSC certified forest products have a higher overall mention in project specifications compared to other green product labeling programs”.[xxii] According to MH’s 2011 report FSC was specified in 20% of specifications in 2009, up from 11.6% in 2006.[ii]

FSC specification language is key to communicating the specific product desires of the project team to all that will bid, buy, and build with FSC certified products. Research during the design development phase should have provided a number of products that are available. A higher success rate has been observed for those projects that employ an FSC certified *line-item strategy* as opposed to a blanket specification for all wood products. Also ensure the information discovered during the design development phase related to grade, delivery times, and species are included in the specifications, so contractors are aware if special steps need to be taken to secure products.[xxiii]

The following is specification language provided by FSC.[xxii]

PART ONE — GENERAL

1.1 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other **Division 1** Specification Sections, apply to this Section.

1.2 Summary

A. This section includes administrative and procedural requirements for use of FSC certified forest products during performance of the Work, including the following:
   1. Certified Wood Bid Compliance Form
   2. Vendor Reference List
   3. Certified Wood Project Documentation Summary

B. Related Sections include the following:

Division 1 — General Requirements

013100 Project Management & Coordination: through meetings and conference calls ensure that all general and sub-contractors are familiar with the projects' FSC goals.
013300 Submittal Procedures: ensure that FSC COC certificates are submitted from qualified manufacturers, fabricators, or suppliers before products are purchased.
013531 If appropriate, reference LEED Requirements
014300 Quality Requirements: for submitting a report of manufacturers, fabricators, or suppliers FSC COC qualifications.
017853 Sustainable Design Closeout Documentation: which will include Project Documentation Summary form and receipts from FSC COC suppliers.

Definitions

FSC (Forest Stewardship Council): All wood products designated in the specification as "FSC certified"
Certified Well-Managed Forests: Forests certified to be in compliance with the standards endorsed by the Forest Stewardship Council (FSC).
FSC-certified Wood Products: Products milled or otherwise altered by manufacturers certified to be in compliance with the standards endorsed by the Forest Stewardship Council (FSC).

PART TWO — PRODUCTS

2.1 Basic Product Requirements

A. Wood products in this section that have been identified through research as being available from FSC-certified sources, and should be specified on a line-by-line basis as "FSC certified." Approved vendors are available online at: *www.fscus.org*

Division 8 — Openings

081400 Wood Doors

2.2 Submittals

A. For all wood products designated in this specification as "FSC certified," provide evidence of compliance with FSC standards as follows:
   1. Demonstrate that products are FSC certified by providing vendor invoices. Invoices will contain the vendor's COC number and identify each FSC certified product on a line-item basis. A "vendor" is defined as the company that furnishes wood products to project contractors and/or subcontractors for on-site installation.
   2. Wood products without submittal of acceptable documentation will be rejected.

2.3 Quality Assurance

A. All wood products designated as "FSC certified" in this specification shall be certified according to the rules of the Forest Stewardship Council (*www.fscus.org*).

B. The following North American certification bodies are accredited by the FSC to certify forest products:

Scientific Certification Systems (*www.scscertified.com*)
SmartWood (*www.smartwood.org*)
SGS Qualifor (*www.qualifor.com*)
Soil Association (*www.soilassociation.org*)

2.4 Qualified Raw Materials and Solid Wood Product Vendors
A Provide list of qualified vendors to assists contractors and subcontractors. **Where possible, contact information for potential vendors should be included in the specification.**

PART THREE — EXECUTION
3.1 Coordination and Verification
A. The contractor shall verify and coordinate the use of all wood products specified as FSC certified.

Summary

- Today's wood door manufacturers are responding to a growing trend toward sustainable building design with architectural wood doors that comply with architectural specifications for certified materials.
- Certified wood originates in forests that have been certified as sustainably well-managed by an independent, third-party certification organization.
- The Forest Stewardship Council (FSC) certification system has become the choice for many architects who specify certified wood doors.
- Designers who specify FSC-certified wood doors can earn points toward achieving green building certification under LEED, CHPS, and Green Globes.
- LEED has become the benchmark for green building certification programs and only accepts FSC certified products for assisting with Certified Wood credit.
- As of April 2008, distributors not installing doors are required to have a valid FSC COC Certificate if they wish to assist provide MR credit 7 assistance.
- In order for an architectural wood door to carry an FSC label, the door's manufacturer must establish a "COC," or paper trail from the finished product back to the certified forest.
- An on-site COC assessment of the manufacturer's inventory control is required by an FSC-Accredited Certifier as part of the certification process. This audit also verifies the tracking and handling of the product. These requirements also apply to stocking door distributors.
- Once COC certification is confirmed the architectural wood door manufacturer or distributor may apply FSC claims to invoices and shipping documentation for certified products.

- FSC certified and Controlled Wood materials are readily available. Veneers may be subject to availability. In order for a door to have a FSC claim, all wood components must be FSC certified or meet FSC Controlled Wood requirements.
- Manufacturer verification of Controlled Wood is complicated because of the difficulty of obtaining transport and proof of purchase documentation from the supply chain to confirm the forest of origin.
- FSC claims are calculated using the Percentage System for most door manufacturers. Claims are calculated using FSC and Virgin Material (Wood) components.
- LEED credit MR 7 assistance requires the invoice to state a valid claim from a FSC certified organization.
- Incorporating FSC specification on a product by product basis equates to increased success in achieving FSC requirements over a blanket specification for all wood products.

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[xxii] McGraw-Hill Construction. *Green Outlook 2009, Trends Driving Change*
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