

## ENVIRONMENTAL PRODUCT DECLARATION

# ARCHITECTURAL WOOD DOOR LEAF

### INTERIOR FLUSH DOOR – ReCOR CORE, WOOD VENEER FACING

ARCHITECTURAL SERIES: MODELS AWRC01, AWRC02, AWRC03, AWRC04

CRAFTSMAN SERIES: MODELS CSRC01, CSRC02, CSRC03, CSRC04



*Shown above: Oregon Door Architectural Series Model AWRC01, ReCOR core door with plain sliced cherry veneer face. Manufactured in Winston, Oregon.*



**OregonDoor**

we build the doors that build your reputation

Oregon Door is a leading manufacturer of high-quality architectural flush wood and FRP doors. Headquartered in the Pacific Northwest, the company appreciates the beauty of the region and understands the responsibility a manufacturer must play as a good steward of the environment.

Environmental responsibility is at the heart of Oregon Door's ethos and the company continually strives to be the leader in providing sustainable solutions for all opening needs.

What makes Oregon Door different? In addition to its true commitment to sustainability—an extraordinary line of products, uncommon flexibility, bend- over- backwards commitment and quick in-house decisions stand out.

Find more information at [oregondoor.com](http://oregondoor.com).



This declaration is an environmental product declaration (EPD) in accordance with ISO 14025. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc. Accuracy of Results: EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.



PROGRAM OPERATOR	UL Environment
DECLARATION HOLDER	Oregon Door
DECLARATION NUMBER	4787690567.118.1
DECLARED PRODUCT	Interior Flush Door - ReCor Core, Wood Facing
REFERENCE PCR	PCR for Interior Architectural Wood Door Leaves (ASTM, March 2015)
DATE OF ISSUE	October 31, 2017
PERIOD OF VALIDITY	5 Years
CONTENTS OF THE DECLARATION	Product definition and information about building physics Information about basic material and the material's origin Description of the product's manufacture Indication of product processing Information about the in-use conditions Life cycle assessment results Testing results and verifications
The PCR review was conducted by:	
Review Panel	
Chair: Jamie Meil, Athena	
cert@astm.org	
This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories	
<input type="checkbox"/> INTERNAL <input checked="" type="checkbox"/> EXTERNAL	
Wade Stout, UL Environment	
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	
Thomas P. Gloria, Industrial Ecology Consultants	

This EPD conforms with EN 15804

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Interior Flush Door – ReCor Core, Wood Veneer Facing

According to ISO 14025

## Product Description

### Product Description

This Environmental Product Declaration covers Oregon Door interior flush doors with ReCor core and wood veneer facing. The results represent a production-weighted average door leaf.

### Industry Standards

- Architectural Woodwork Standards (AWS) Edition 2
- ANSI/WDMA I.S. 1A Industry Standard for Interior Architectural Wood Flush Doors

### Product Images



**Figure 1: Images of the declared product in various applications**

Oregon Door's ReCor core doors with wood veneer facing are offered in multiple configurations for just about any interior commercial opening. All commercially-available wood veneer species are available, including sketch-face, DOORfx graphic applications, and specialty options. Oregon Door's advanced manufacturing tools can also factory-machine for all hardware, glass, louver, and other applications.

## Material Content

Table 1: Material composition of a production-weighted average door leaf

Material	Mass %
<b>Core</b>	
Recycled core	63.2
<b>Stiles and Rails</b>	
Laminated stile	10.7
Mineral blocking	0.23
<b>Facing</b>	
2-ply door skin	18.4
Solid bamboo	0.00686
Hardboard	3.31
Medium density overlay on HDF backer	1.1
<b>Other</b>	
Glass accessories	0.64
Wood accessories	0.166
Metal accessories	0.0062
Adhesive	2.12



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## Manufacturing Process

Oregon Door products are manufactured in strict accordance to all industry standards using a combination of old-world craftsmanship and cutting-edge technology.

The general process includes the following steps:

- (1) Raw Material Received and Allocated
- (2) Cores Sized
- (3) Stiles and Rails Bonded to Core
- (4) Crossband and Face Veneer Bonded to Core
- (5) Trimmed to Final Size
- (6) Edge Materials Adhered and Trimmed
- (7) Machined to Exacting Hardware Tolerances
- (8) Factory Finished using Water-Based, UV-Cured Stains and Sealants
- (9) Products Individually Inspected by Trained Personnel
- (10) Products Packaged for Shipment

The figure below illustrates the declared product.



Figure 2: Input and output flows of the Oregon Door manufacturing facility

## Product Life Cycle Flow Diagram

The diagram below is a representation of the most significant contributions to the production of wood door leaves:

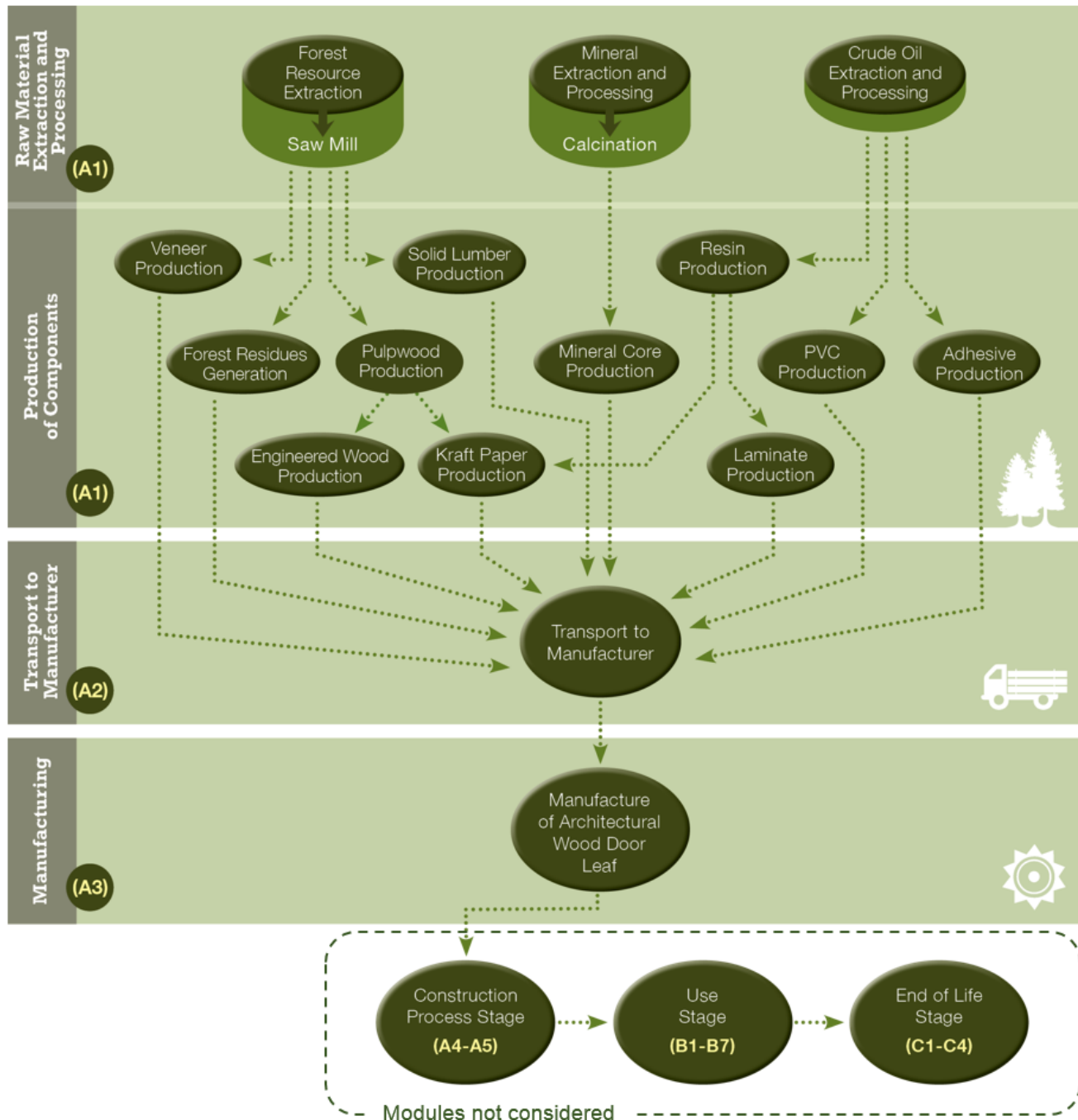


Figure 3: System boundary of study

Life Cycle Assessment

Declared Unit

Per the PCR, the declared unit is a wood door leaf measuring 21 ft² (1.95 m²) at a nominal thickness of 1-3/4” (44.45 mm). The reference flow to satisfy this declared unit is 54.4 kg of production-weighted wood door leaf.

System Boundaries

This EPD declares the impacts of a production-weighted wood door leaf from cradle-to-gate. Therefore, post-manufacturing life cycle stages are not considered in this declaration. The applied system boundary represents the life cycle modules A1, A2, and A3 as defined by EN 15804 and shown in Table 2.

Table 2: Cradle-to-gate or product stage information module covered in the EPD

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE			
Raw material supply	Transport	Manufacturing	Transport	Construction- installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4



## Life Cycle Impact Assessment

In accordance to the guiding PCR, TRACI 2.1 impact characterization methodology is used to calculate the declared environmental impacts. Additional inventory metrics are also calculated per the guiding PCR. The declared impacts and inventory metrics are summarized in Table 3.

**Table 3: LCA results, per declared unit**

Type	A1-A3	Unit
<b>TRACI 2.1 Impact Category</b>		
Global Warming Potential (GWP)	51.2	kg CO <sub>2</sub> eq
Acidification Potential (AP)	0.245	kg SO <sub>2</sub> eq
Eutrophication Potential (EP)	0.0141	kg N eq
Ozone Depletion Potential (ODP)	6.6E-008	kg CFC-11 eq
Smog Formation Potential (SFP)	4.71	kg O <sub>3</sub> eq
<b>Primary Energy Consumption</b>		
Non-renewable, fossil	822	MJ (HHV)
Non-renewable, nuclear	40	MJ (HHV)
Renewable (solar, wind, hydroelectric, and geothermal)	224	MJ (HHV)
Renewable (biomass)	106	MJ (HHV)
<b>Material Resource Consumption</b>		
Non-renewable material resources	28.3	kg
Renewable material resources	6.61E004	kg
Net fresh water (inputs minus outputs)	591	L
<b>Waste Generation</b>		
Non-hazardous waste generated	3.3	kg
Hazardous waste generated	2.72E-005	kg



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## Sustainability Programs and Initiatives



### GREENGUARD Certification

All Oregon Door products are GREENGUARD and GREENGUARD Gold Certified. This third-party certification assures our doors are low-emitting and contribute to healthy indoor environments.

GREENGUARD Certification establishes acceptable indoor air standards for indoor products, environments, and buildings. GREENGUARD Gold Certification offers stricter certification criteria, considers safety factors to account for sensitive individuals (such as children and the elderly), and ensures that a product is acceptable for use in environments such as schools and healthcare facilities.

GREENGUARD certified products are referenced standards in numerous sustainable building initiatives including: Leadership in Energy and Environmental Design (LEED®), Collaborative for High Performance Schools (CHPS), Green Guide for Health Care (GGHC), Sustainable Building Industry Council (SBIC) and many others. For more information on the GREENGUARD Certification Program emission standards visit [greenguard.org](http://greenguard.org).



### Recycled Content Validation

All Oregon Door recycled content claims are validated by UL Environment.

Building products that incorporate recycled content materials reduce environmental impacts, resulting from extraction and processing of virgin materials. UL Environment conducts a detailed evaluation of the product and manufacturing operations, to verify and certify recycled content claims on a per product basis. Additionally, UL Environment verifies sources of recycled materials and distinguishes recycled content by pre- and post-consumer content within the supply chain.

Multiple Oregon Door products are manufactured using recycled content materials and the validated percentage is listed on each product data sheet.



The mark of  
responsible forestry

### FSC® Certification

Oregon Door is Forest Stewardship Council® (FSC) Chain-of-Custody (COC) certified (SCS-COC-000588) promoting responsible forest management.

The Forest Stewardship Council (FSC) promotes environmentally appropriate, socially beneficial, and economically viable management of the world's forests. FSC Chain of Custody (COC) is the path taken by raw materials, processed materials and products, from the forest to the consumer, including all successive stages of processing, transformation, manufacturing and distribution.

The main objective of FSC COC certification is to ensure that FSC certified material is tracked through the supply chain between operations and production processes within operations. Only FSC COC certified operations are permitted to label products with the FSC trademarks.

A certified Chain of Custody up to the final point of sale enables end customers to identify and choose FSC certified products knowing there is a system in place to verify the sources of the wood used to manufacture the products. The FSC label thus provides the link between responsible production and consumption.

Almost all Oregon Door products are available as FSC certified.

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## Extended Producer Responsibility—Product Reuse

Oregon Door offers an extended producer responsibility (EPR) product reuse strategy that encourages environmentally responsible practices for processing and disposing of wood and fiberglass reinforced polymer (FRP) doors and frames that have reached the end of their useful life.

This provides reuse, repurposing and/or recycling of door products that have reached the end of their initial life cycle and are not set for incorporation into a project's building reuse efforts. Details are available at [oregondoor.com](http://oregondoor.com) or by contacting the factory.



## EPA Green Power Partnership

Oregon Door is an Environmental Protection Agency (EPA) Green Power Partner.

In 2001, EPA launched the Green Power Partnership to increase the use of renewable electricity in the United States. The Green Power Partnership is a voluntary program that encourages organizations to use green power as a way to reduce the environmental impacts associated with conventional electricity use. In return for technical assistance and recognition, EPA Green Power Partners commit to use green power for all, or a portion, of their annual electricity consumption. EPA defines green power as a subset of renewable resources that represent those resources that offer the highest environmental benefit.

The overall vision of the Green Power Partnership is to protect human health and the environment by expanding U.S. renewable energy markets through the voluntary use of green power.



## Blue Sky Business Partner Program

Oregon Door is a Pacific Power Blue Sky Business Partner at the Visionary level.

The Blue Sky Business Partner Program rewards businesses for supporting renewable energy through the Blue Sky program. The Blue Sky program allows organizations to support renewable energy as a way to reduce the environmental impacts associated with their electricity use and achieve their environmental goals through a renewable energy purchase that represents a specific percentage of their energy use.



## Energy Trust of Oregon Strategic Energy Management

Oregon Door is a participant in the Energy Trust of Oregon Strategic Energy Management (SEM) program.

SEM provides training to improve operations and engage team members. Working with energy experts from Energy Trust, the Oregon Door team develops skills to identify operations and maintenance changes that make a big difference in energy use.

Companies participating in SEM learn to:

- Implement ongoing operations and maintenance practices
- Reduce total annual energy costs between five and 10 percent
- Identify and prioritize capital improvements or process changes that lead to more savings
- Overcome barriers to efficiency
- Boost team member engagement to contribute to sustainability goals
- Embed SEM principles in your company's operations

## Other Environmental Information: Carbon Sequestration

The guiding PCR permits separate reporting of carbon sequestered in wood components. The net Global Warming Potential credit for carbon storage is calculated using the FPIInnovations PCR Carbon Sequestration Calculator, which adheres to guidance set by ISO 14047 and adopted by the International Council of Forest and Paper Associations (ICFPA).

As indicated in Table 1, 34.78 kg (63.20%) of door material content is made of wood and other renewable origins (engineered wood products, natural wood products, and natural fibers), serving as a basis for calculation. Moreover, approximately 10% of the engineered wood is considered to be resinous compounds; therefore, this mass is subtracted from the calculation (Puettmann, et al., 2013). To calculate this subtraction, the engineered wood portion was reduced by 10%. The resulting mass of 31.30 kg (56.88% of total door material content) is entered into the calculator. The wood product description nonstructural panels was found to be closest to wood door leaf. This mass is assumed to be oven dry mass. The carbon content is considered to be the default value of 50%. The output of the calculator is shown in **Error! Reference source not found.** According to this calculator, 48.66 kg CO<sub>2</sub>-eq. are sequestered per declared unit in the product phase, A1-A3.

Table 4: FPIInnovations carbon sequestration calculator results

User inputs	Unit	Description
<b>Nonstructural panels</b>		
<b>31.30</b>	oven dry kg	Wood mass only; no resins or moisture
<b>50%</b>		50% provided as default
Calculator Outputs	Unit	Description
Initial Greenhouse Gas Credit		
<b>-87.95</b>	kg CO <sub>2</sub> eq.	<b>Carbon sequestered in product at manufacturing gate</b>
<b>Greenhouse Gas Emissions</b>		
7.58	kg CO <sub>2</sub>	Carbon dioxide emissions from recycled wood (accounted as 100% CO <sub>2</sub> emission)
7.58	kg CO <sub>2</sub>	Carbon dioxide emissions from combusted wood waste
5.48	kg CO <sub>2</sub>	Carbon dioxide emissions from aerobic landfills
1.38	kg CO <sub>2</sub>	Carbon dioxide emissions from fugitive landfill gas
7.05	kg CO <sub>2</sub>	Carbon dioxide emissions from combusted landfill gas
<b>29.06</b>	<b>kg CO<sub>2</sub></b>	<b>Total carbon dioxide emissions</b>
<b>Methane emissions</b>		
.41	kg CH <sub>4</sub>	Methane emissions from fugitive landfill gas
<b>.41</b>	<b>kg CH<sub>4</sub></b>	<b>Total methane emissions</b>
<b>Net GWP Credit</b>		
<b>-48.66</b>	<b>kg CO<sub>2</sub>eq.</b>	<b>Sequestration, net of greenhouse gas emissions</b>

## References

GABI TS 2016	thinkstep AG; GaBi ts: Software-System and Database for Life Cycle Engineering. Copyright, TM. Stuttgart, Echterdingen, 1992-2016.
EN 15804	EN 15804:2012-02 Sustainability of construction works - Environmental Product Declarations - Core rules for the product category of construction products
ISO 14025	ISO 14025:2011-10 Environmental labels and declarations - Type III environmental declarations - Principles and procedures
ISO 14040	ISO 14040:2009-11 Environmental management - Life cycle assessment - Principles and framework
ISO 14044	ISO 14044:2006-10 Environmental management - Life cycle assessment - Requirements and guidelines
ASTM 2015	Product Category Rule for Preparing an Environmental Product Declaration for Interior Architectural Wood Door Leaves, 2015

## Contact Information

### Study Commissioner



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