NUCRAFT

VERIFIED by SCS Global Services
ENVIRONMENTAL PRODUCT DECLARATION
BASED ON LCA

Declaration Owner
Nucraft
epd@Nucraft.com
Phone Number: 877.682.7238
Nucraft.com

Product:
Ascari™ Conference

Functional Unit
The functional unit is one square meter (1 m^2) of physical floor space, maintained for a 10-year period.

EPD Number and Period of Validity
SCS-EPD-10160
EPD Valid: May 13, 2024 to May 12, 2029
Version: April 14, 2025

Product Category Rule
BIFMA PCR for Tables: UNCPC 3812. NSF International. Version 1. Valid through January 31, 2026.

Program Operator
SCS Global Services
2000 Powell Street, Ste. 600, Emeryville, CA 94608
+1.510.452.8000 | www.SCSglobalServices.com

SCSglobal SERVICES

Declaration owner:	Nucraft
Address:	5151 W River Dr NE, Comstock Park, MI 49321
For Additional Explanatory Material:	epd@Nucraft.com
Declaration Number:	SCS-EPD-10160
Date of Issue:	May 13, 2024
Declaration Validity Period:	EPD Valid: May 13, 2024 to May 12, 2029
Version Date:	April 14, 2025
Program Operator:	SCS Global Services, 2000 Powell Street, Ste. 600, Emeryville, CA 94608 USA
Declaration URL Link:	https://www.scsglobalservices.com/certified-green-products-guide
General Program Instructions:	SCS Type III Environmental Declaration Program: Program Operator Manual. V11.0
Product(s):	Ascari Conference
Functional Unit:	One square meter (m^2) of physical floor space maintained for 10 years
Product RSL:	10 Years
Product Subcategory:	Conference Tables
Markets of Applicability:	North America
Year(s) of Reported Manufacturer Primary Data:	May 2022 – April 2023
LCA Software & Version Number:	openLCA 2.0.4
LCI Database(s) & Version Number:	Ecoinvent 3.9.1 EN15804+A2
LCA Practitioner:	Sahil Akolawala
Reference PCR:	BIFMA PCR for Tables: UNCPC 3812. NSF International. Version 1. Valid through January 31, 2026.
Sub-category PCR review:	Thomas P. Gloria, Ph.D., Industrial Ecology Consultants; Jack Geibig, P.E., Ecoform; Dr. Michael Overcash, Environmental Clarity
Independent critical review of the LCA and data, according to ISO 14044 and the PCR:	☐ internal ☒ external
LCA Reviewer:	Beth Cassese, SCS Global Services
Independent verification of the declaration and data, according to ISO 14025 and the PCR:	☐ internal ☒ external
EPD Verifier:	Beth Cassese, SCS Global Services

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Disclaimers: *This EPD conforms to ISO 14025, 14040, 14044, and 21930.*

Scope of Results Reported: *The PCR requirements limit the scope of the LCA metrics such that the results exclude environmental and social performance benchmarks and thresholds, and exclude impacts from the depletion of natural resources, land use ecological impacts, ocean impacts related to greenhouse gas emissions, risks from hazardous wastes and impacts linked to hazardous chemical emissions.*

Accuracy of Results: *Due to PCR constraints, this EPD provides estimations of potential impacts that are inherently limited in terms of accuracy.*

Comparability: *The PCR this EPD was based on was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results, due to and not limited to, the practitioner's assumptions, the source of the data used in the study, and the specifics of the product modeled.*

In accordance with ISO 21930:2017, EPDs are comparable only if they comply with the core PCR, use the same sub-category PCR where applicable, include all relevant information modules and are based on equivalent scenarios with respect to the context of construction works.

1. Nucraft

At Nucraft, we believe in beautiful connections. With interior trends. With industrial design leaders. Between craftsmanship and technology. All with the ultimate goal of helping people make connections with each other. Nucraft was founded in 1945 and is based in Comstock Park, Michigan.

Our large manufacturing facility in Comstock Park, Michigan can confidently handle a wide range of project sizes. Our vertical integration allows us greater control over our processes, fast and flexible response to accommodate change, and continuous improvement advantages. Manufacturing Location: Comstock Park, MI 49321.

2. Ascari™ Conference

2.1 KEY ENVIRONMENTAL PARAMETERS

Product	Abbreviation	Primary Energy Demand [MJ, LHV]	Recycled Content	
			Pre-consumer %	Post-consumer %
Rectangle Table with Veneer Top with Hardwood Edge and Veneer Closed Panel Base, Low Profile Perimeter Power	VCP Veneer	7.66E+03	16%	10%
Rectangle Table with Glass Top and Veneer Closed Panel Base, Low Profile Perimeter Power	VCP Glass	8.48E+03	11%	7%
Rectangle table with Stone Top and Veneer Closed Panel Base, Low Profile Perimeter Power	VCP Stone	1.15E+04	14%	9%

2.2 PRODUCT DESCRIPTION

Ascari™ Conference brings elegance and outstanding performance to meeting rooms. Luxurious materials combined with pristine craftsmanship and advanced technology create a table collection that is as beautiful as it is powerful. With a wide range of materials and bases, Ascari Conference is available in multiple configurations and options, including tables with rectangle, boat and round tops, a wide range of materials, edge profiles, power and data connectivity, and bases. For this study we modeled rectangle tables. Ascari Conference is certified to SCS's Indoor Advantage Gold. The below images are renderings representing the three (3) sets of LCA and LCI data provided in the report, corresponding to section 2.1. The products under study have a static height of 0.76 meters and seat up to 10 individuals.

Figure 1: *Veneer Top with Veneer Closed Panel Base.*

Figure 2: *Glass Top with Closed Panel Veneer Base*

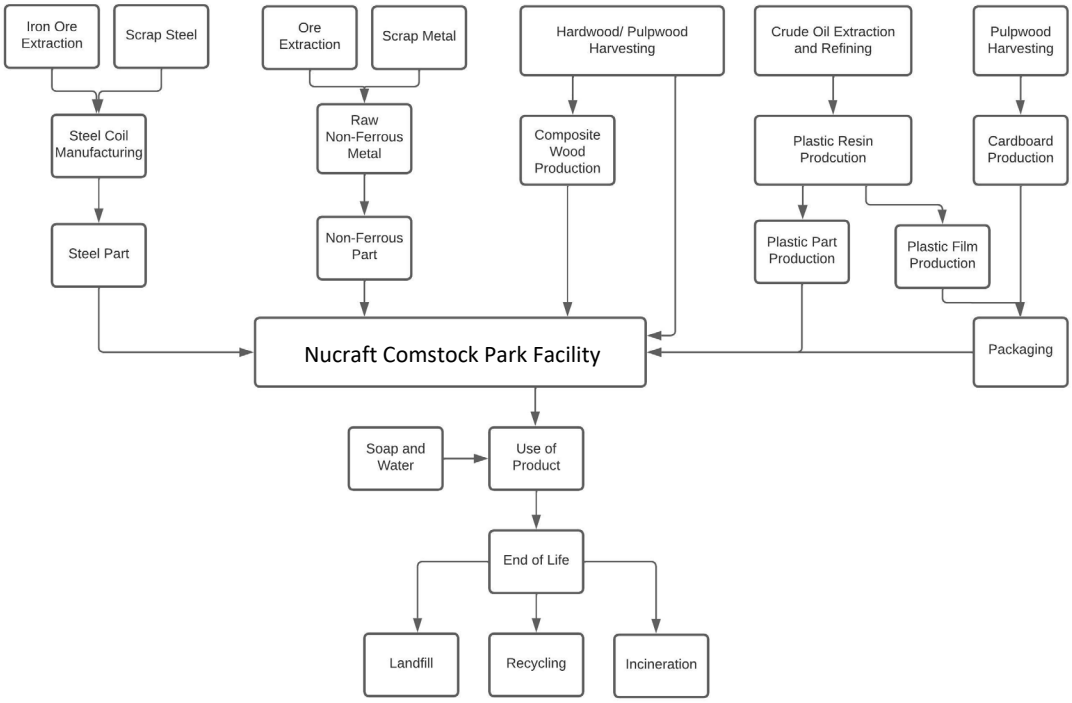
Figure 3: *Stone Top With Closed Panel Veneer Base*

2.3 PRODUCT SPECIFICATION

Base model: Ascari Conference rectangle table with veneer top and hardwood edge, 120" x48" with Veneer Closed Panel base. (ACRT-12048-V-SQC-VCP)

The remaining products codes are as follows: Set 2 - ACRT-12048-G-SQC-VCP, Set 3 - ACRT-12048-S-SQC-VCP.

2.4 FLOW DIAGRAM



2.5 PRODUCT AVERAGE

This study contains six (6) configurations of the Ascari™ Conference Table, with three (3) sets of results:

Set 1 (VCP Veneer):
Rectangle Table with Veneer Top with Hardwood Edge and Veneer Closed Panel Base, Low Profile Perimeter Power,
Rectangle Table with Veneer Top with Hardwood Edge and Veneer Open Panel Base,
Low Profile Perimeter Power, Rectangle Table with Veneer Top with Hardwood Edge and Veneer Island Base (Representative Results),
Rectangle Table with Veneer Top with Hardwood Edge and Veneer Closed Panel Base with Power Drawers[1]
Set 2 (VCP Glass): Rectangle Table with Glass Top and Veneer Closed Panel Base, Low Profile Perimeter Power
Set 3 (VCP Stone): Rectangle table with Stone Top and Veneer Closed Panel Base, Low Profile Perimeter Power

2.6 APPLICATION

The intended application of this product is to provide an attractive and functional table to furnish conference rooms in office buildings.

[1] The LCIA results of the Island Base Table and the Power Drawer Table were within 10% of one another, and thus one set of results represents both product models.

3. Methodological Framework

3.1 FUNCTIONAL UNIT

The product has a functional unit of 1 square meter of physical floor space to align with the applicable product category rules (PCR).

Set 1 (VCP Veneer): 75.62 kg/m^2 of physical floor space for 10 years, 3.72 m^2 of physical floor space and 2.81 m^3 of volume required.

Set 2 (VCP Glass): 83.78 kg/m^2 of physical floor space 10 years, 3.72 m^2 of physical floor space and 2.80 m^3 of volume required.

Set 3 (VCP Stone): 113.40 kg/m^2 of physical floor space for 10 years, 3.72 m^2 of physical floor space and 2.84 m^3 of volume required.

3.2 SYSTEM BOUNDARY

A1 and A2 correspond to PCR Module A, A3 corresponds to PCR Module B. A4 and B2 correspond to PCR Module C[2], and C2 and C4 correspond to PCR Module D.

Table 1. *System Boundary.*

Product Stage							
Cradle to Gate (A)		Gate to Gate (B)		Usage (C)		End of Life (D)	
Raw material extraction and processing	Transportation to Gate	Manufacturing	Distribution	Energy	Maintenance/Repair	Transportation	Disposal Modeling
X	X	X	X	X	X	X	X

X = Module Included | MND = Module Not Declared

3.3 MODULE D

Not applicable.

3.4 ALLOCATION

This study is inclusive of all 6 products named in Section 2.5. Since there are no other co-products, no allocation based on co-products is required. A Cradle-to-Gate scope was used.

To derive a per-unit for manufacturing inputs and outputs such as electricity, thermal energy, and waste streams, allocation based on Total Sales by unit was adopted. As a default, secondary Ecoinvent datasets use a mass basis for allocation.

The method in which recycled materials were handled is relevant to the defined system boundary. Throughout the study, recycled materials were accounted for via the cut-off method. In this method, impacts and benefits associated

[2] The PCR requires a description of one day of power consumption of the product, detailed in section 4.5.

with the previous life of a raw material from recycled stock are excluded from the system boundary. Additionally, impacts and benefits associated with secondary functions of materials at the end of life are also excluded (i.e. production into a third life or energy generation from incineration). The study does include the impacts associated with reprocessing and preparation of recycled materials feed streams that are included in the studied product.

3.5 CUT-OFF RULES

Any material present at or above 1 wt% of the final product was included within the scope of this study. Material inputs less than 1% were included if sufficient data was available to warrant inclusion and/or the material input was thought to have significant environmental impacts.

No energy inputs were excluded in this study. Excluded materials include felts and adhesives used in assembly of the product.

3.6 DATA SOURCES

Table 2. *Data sources for the Ascari™ Product.*

Flow	Dataset	Data Source	Publication Date
Raw Materials			
Aluminum	Aluminium alloy production, AlMg3	Ecoinvent 3.9.1	2023
Aluminum	Metal working, average for aluminum product manufacturing	Ecoinvent 3.9.1	2023
Aluminum	Aluminium removed by turning, average, computer numerical controlled	Ecoinvent 3.9.1	2023
Electronics	Electronics production, for control units	Ecoinvent 3.9.1	2023
Glass	Flat glass production, coated	Ecoinvent 3.9.1	2023
Packaging (Plastics)	Blow moulding	Ecoinvent 3.9.1	2023
Packaging (Plastics)	Polyethylene production, linear low density, granulate	Ecoinvent 3.9.1	2023
Packaging (Cardboard)	Corrugated board box	Ecoinvent 3.9.1	2023
Plastics	Melamine formaldehyde resin	Ecoinvent 3.9.1	2023
Plastics	Extrusion, plastic pipes	Ecoinvent 3.9.1	2023
Steel	Steel production, electric, chromium steel 18/8	Ecoinvent 3.9.1	2023
Steel	Market for laser machining, metal, with YAG-laser, 330W power	Ecoinvent 3.9.1	2023
Steel	Metal working, average for steel product manufacturing	Ecoinvent 3.9.1	2023
Stone	Natural stone plate production, cut	Ecoinvent 3.9.1	2023
Wood - MDF	Medium density fibreboard	Ecoinvent 3.9.1	2023
Wood – Particle Board	Particleboard production, uncoated, average glue mix	Ecoinvent 3.9.1	2023
Wood – Plywood	Plywood production	Ecoinvent 3.9.1	2023
Wood – Veneer Log	Sawlog and veneer log, hardwood, measured as solid wood under bark	Ecoinvent 3.9.1	2023
Electricity and Natural Gas			
Electricity	Market for electricity, medium voltage, US-RFCM	Ecoinvent 3.9.1	2023
Natural Gas	Market for heat, district or industrial, natural gas	Ecoinvent 3.9.1	2023
Propane	Natural gas liquid fractionation	Ecoinvent 3.9.1	2023
Transportation			
Truck	transport, freight, lorry, all sizes, EURO4	Ecoinvent 3.9.1	2023

3.7. DATA QUALITY

The data quality assessment addressed the following parameters: time-related coverage, geographical coverage, technological coverage, precision, completeness, representativeness, consistency, reproducibility, sources of data, and uncertainty.

Table 3. *Data quality assessment for the Ascari product line,*

Data Quality Parameter	Data Quality Discussion
Time-Related Coverage: Age of data and the minimum length of time over which data is collected	Primary data was provided by the manufacturer and represents data for the period of May 2022 to April 2023. Nucraft owns the manufacturing facility and provided primary data for the full year. Time coverage for primary data is completely representative. Secondary data was collected for raw materials, the processing of each, and others outside the facility boundary. Secondary dataset time coverage varies and is based on when the data was collected. Therefore, the most recent data set was chosen, and meets the PCR requirements of being no older than 10 years.
Geographical Coverage: Geographical area from which data for unit processes is collected to satisfy the goal of the study	The geographical scope of all remaining stages is Noth America (US and Canada), in selecting secondary data from Ecoinvent, priority was given to technological representativeness of the data. Of the sets that were deemed of high enough quality, then the most representative geographical data was used. This led to Global, European, and Rest of World being used when North America data was not available.
Technology Coverage: Specific technology or technology mix	Primary data provided by the manufacturer is specific to the facility and the processes and products included in the boundary. Given that this study is for products manufactured at the Comstock Park, Michigan facility, the technological coverage is completely representative. Secondary data was used to fill in gaps throughout the supply chain to address all inputs from Cradle-to-Grave. Technological coverage of the datasets is considered to be representative of the actual supply chain. Improving primary data in the supply chain would increase the technological coverage, but the use of secondary data sets for generic processes meets the goal and scope of the study.
Precision: Measure of the variability of the data values for each data expressed	The precision of the data is considered to be good, as a list of suppliers and a bill of materials was provided for the product under study. All inbound transportation data is a weighted average of all suppliers for each material, which was determined by distance of the supplier's facility to the production facility in Comstock Park, Michigan. All outbound transpiration data is a weighted average of sales. Proxy data was used for end-pf-life processes where secondary data was not available for that material. A sensitivity analysis was done on these processes.
Completeness: Percentage of flow that is measured or estimated	The LCA model included all known mass and energy flows for production of the Ascari table product line. In some instances, surrogate data used to represent upstream and downstream operations may be missing some data which is propagated in the model. No known processes or activities contributing to more than 1% of the total environmental impact for each indicator are excluded. In total, these missing data represent less than 5% of the mass or energy flows.
Representativeness: Qualitative assessment of the degree to which the data set reflects the true population of interest	Data used in the assessment represent typical or average processes as currently reported from multiple data sources to Ecoinvent and are therefore generally representative of the actual processes and technologies for production of these materials. Considerable deviation may exist among actual processes on a site-specific basis; though such a determination would require detailed data collection at each node upstream.
Consistency: Qualitative assessment of whether the study methodology is applied uniformly to the various components of the analysis	The consistency of the assessment is considered to be high. Data sources of similar quality and age are used with a bias towards Ecoinvent data. Different portions of the product life cycle are equally considered; however, it must be noted that final disposal of the product is based on assumptions of current US practice or market values from Ecoinvent.
Reproducibility: Qualitative assessment of the extent to which information about the methodology and data values would allow an	Based on the description of data and assumptions used this assessment would be reproducible by other practitioners. All assumptions, models, and data sources are documented.

Data Quality Parameter	Data Quality Discussion
independent practitioner to reproduce the results reported in the study	
Sources of the Data: Description of all primary and secondary data sources	Data representing energy use at the Comstock Park, Michigan facility represents a yearly consumption and is considered high quality, as this represents fluctuations in production. Secondary LCI datasets from the Ecoinvent database are used as appropriate.
Uncertainty of the Information: Uncertainty related to data, models, and assumptions	Uncertainty of any primary data provided by Nucraft is dependent on how the data was allocated to each product. This allocation came from annual utility data and sales. A more sub metered processes may lead to more detailed utility data, therefore decreasing the uncertainty of the primary data. For secondary data, all uncertainty is outlined and published by Ecoinvent for Ecoinvent 3.9 datasets.

3.8 PERIOD UNDER REVIEW

Annual sales data was collected during May 2022 to April 2023 to inform the product distribution model. All other primary data was provided by the manufacturer and represents all data for the same year period. Secondary dataset time coverage varies and is based on when the data was collected. Therefore, the most recent dataset was chosen form Ecoinvent 3.9 with reference years ending in 2022.

3.9 COMPARABILITY AND BENCHMARKING

The PCR this EPD was based on was written to determine the potential environmental impacts of a furniture seating product from cradle-to-grave. It was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results, due to and not limited to, the practitioner's assumptions, the source of the data used in the study, and the specifics of the product modeled. Comparability of EPDs is limited to those applying a functional unit.

3.10 ESTIMATES AND ASSUMPTIONS

Choices and judgments that may have affected the LCA have been are summarized below:

- This LCA was conducted with an attributional approach.
- All primary and secondary data was modelled in OpenLCA using Ecoinvent datasets to calculate the potential environmental impacts during each stage of the product's life. For any processes that were not available in the Ecoinvent database, proxy data was used. Details for any proxy data used are outlined in Section 6.2.2.
- If multiple suppliers were identified for a material, then a weighted average of distance was determined based on mass supplied.
- Nucraft's energy usage was normalized to one (1) USD based on the 2022-2023 production data collected.
- Nucraft keeps track of all recycling and landfilled material over the data collection period. All scrap aluminum is recycled by a regional recycling company that sells it back to foundries. All additional waste is treated as municipal solid waste. All waste transportation is determined by using EPA WARM data, which is estimated at 20 miles (32km).
- The fate of the product and packaging was determined using Ecoinvent Market Treatments.
- Type and distance of transportation was determined by developing a weighted average for all shipping data from May 2022 – April 2023 based on sales.
- Any material present at or above 1 wt% of the final product was included within the scope of this study. Material inputs less than 1% were included if sufficient data was available to warrant inclusion and/or the material input was thought to have significant environmental impacts. No energy inputs were excluded in this study.
- To derive a per-unit for manufacturing inputs and outputs such as electricity, thermal energy, and waste streams, allocation based on total sales by unit was adopted. As a default, secondary Ecoinvent datasets use a mass basis for allocation.
- The method in which recycled materials were handled is relevant to the defined system boundary. Throughout the study, recycled materials were accounted for via the cut-off method. In this

method, impacts and benefits associated with the previous life of a raw material from recycled stock are excluded from the system boundary.

- Secondary data sets used in the model are disclosed in Appendix A along with data quality indicators related to the geographical, time representation, and technological coverage of the datasets. If any proxy data was used, it is also included if applicable.
- LCIA Summary:
    - Electrical, Fuels, and Water Consumption
        - Data was collected over the year May 2022 to April 2023. The totals over the collection period were divided by total sales during that period to derive a usage-per-sales unit for use in this model.
    - Raw Materials and Purchasing
        - Nucraft provided all bills of materials and supplier names. ABS, Aluminum, Glass, Hardwood, MDF, Melamine Formaldehyde, Particle Board, Plywood, Power Unit, Steel, and Veneer, comprise all the raw materials. Other raw materials provided in a supplementary BoM for other products that are covered in the study include: Marble and Glass. Inbound shipping distances were calculated using Google Maps and Searoutes.
    - Waste Amounts
        - Nucraft tracks all waste streams associated with manufacturing of the product over the data collection period. All waste was characterized, disposed of, and treated appropriately as outlined in Section 4.6.
    - Outbound Shipping Distance
        - A weighted average of the distances to all states where Nucraft products are shipped was calculated based on sales shipped. It was found that on average, the shipping distance was 1541 km by truck.
    - End of Life (EoL) Scenarios
        - No primary data for the fate of the product was available. Waste from products and packaging was disposed of based on ecoinvent market treatment methods. No credits were taken for energy recovery from waste. Cut-off criteria for recycling were applied.

Furthermore, additional decisions are summarized below:

- The use and selection of secondary datasets from Ecoinvent to represent an aspect of the supply chain is a significant value choice. These datasets were chosen by the LCA Practitioner after discussions with Nucraft and review of the Ecoinvent datasets. It should be noted that no generic data is a perfect fit. Obtaining primary data from the supply chain data would improve the accuracy of results, however, budget and time constraints were considered.
- All declared product systems were modelled using the same assumptions within this study and the results can be applied to all systems using the performance characteristics in Section 2.8.3. All systems are made from the same materials and processed identically. The only variations of the systems are how the material composition of the systems.
- Worldsteel and IAI/EAA datasets were not used for steel and aluminum, respectively, as they were not available to the practitioners at the time of the study for use in openLCA.

The following limitations to this study have been identified:

- Proxy data was used for specific processes, see Section 6.2.2
- Availability of more regionally appropriate data sets would improve accuracy.
- Since this LCA uses the cut-off approach to model recycled material in the product, no credit is given to the end of the product system. Instead, the manufacturer realized reduced environmental impacts through the absence of the burden of virgin material.
- Circular recycling of wood materials for pallets was considered in this study. It was assumed that all pallets were not disposed of upon installation.
- Only known and quantifiable environmental impacts are considered.
- Due to the assumptions and value choices listed above, these results do not reflect the real-life impact scenarios and hence, they cannot assess actual and exact impacts. Instead, it only represents potential environmental impacts.

3.11 UNITS

All data and results are presented using SI units.

4. Technical Information and Scenarios

4.1 MATERIAL COMPOSITION

Note, there are no hazardous or dangerous substances to be known to be in the final products.

Table 4.1 *Material composition of the functional unit for VCP Veneer*

Material	kg	Percent	Pre-consumer Recycled Content %	Post-consumer Recycled Content %
ABS	0.01	0.02%	0.00%	0.00%
Aluminum	6.79	8.97%	60.00%	10.00%
Hardwood	3.50	4.63%	0.00%	0.00%
MDF	1.63	2.15%	83.00%	0.00%
Melamine Formaldehyde	3.03	4.01%	0.00%	0.00%
Stone	0.00	0.00%	0.00%	0.00%
Glass	0.00	0.00%	0.00%	0.00%
Particle Board	39.41	52.12%	0.00%	0.00%
Plywood	0.75	0.99%	0.00%	0.00%
Power Unit	1.43	1.89%	35.00%	36.00%
Stainless Steel	4.35	5.75%	35.00%	36.00%
Cold Rolled Steel	9.58	12.66%	35.00%	36.00%
Hot Rolled Steel	3.36	4.44%	35.00%	36.00%
Veneer	1.79	2.36%	0.00%	0.00%
Total:	75.62	100.00%	15.83%	9.81%

Table 5.2 *Material composition of the functional unit for Set VCP Glass*

Material	kg	Percent	Pre-consumer Recycled Content %	Post-consumer Recycled Content %
ABS	0.01	0.02%	0.00%	0.00%
Aluminum	6.79	8.10%	60.00%	10.00%
Hardwood	3.50	4.18%	0.00%	0.00%
MDF	1.63	1.94%	83.00%	0.00%
Melamine Formaldehyde	3.03	3.62%	0.00%	0.00%
Stone	0.00	0.00%	0.00%	0.00%
Glass	24.20	28.87%	0.00%	0.00%
Particle Board	24.11	28.77%	0.00%	0.00%
Plywood	0.36	0.43%	0.00%	0.00%
Power Unit	1.43	1.70%	35.00%	36.00%
Stainless Steel	4.35	5.19%	35.00%	36.00%
Cold Rolled Steel	9.58	11.43%	35.00%	36.00%
Hot Rolled Steel	3.36	4.01%	35.00%	36.00%
Veneer	1.46	1.74%	0.00%	0.00%
Total:	83.81	100.00%	14.29%	8.85%

Table 6.3 *Material composition of the functional unit for VCP Stone*

Material	kg	Percent	Pre-consumer Recycled Content %	Post-consumer Recycled Content %
ABS	0.01	0.01%	0.00%	0.00%
Aluminum	6.79	5.98%	60.00%	10.00%
Hardwood	3.50	3.09%	0.00%	0.00%
MDF	1.63	1.44%	83.00%	0.00%
Melamine Formaldehyde	3.03	2.67%	0.00%	0.00%
Stone	53.79	47.43%	0.00%	0.00%
Glass	0.00	0.00%	0.00%	0.00%
Particle Board	24.11	21.26%	0.00%	0.00%
Plywood	0.36	0.32%	0.00%	0.00%
Power Unit	1.43	1.26%	35.00%	36.00%
Stainless Steel	4.35	3.83%	35.00%	36.00%
Cold Rolled Steel	9.58	8.45%	35.00%	36.00%
Hot Rolled Steel	3.36	2.96%	35.00%	36.00%
Veneer	1.46	1.29%	0.00%	0.00%
Total:	113.41	100.00%	10.56%	6.54%

4.2 MANUFACTURE

Products are manufactured at the Comstock Park, Michigan facility both by manual assembly and machine assembly. Utilization of machines to cut lumber materials to size, and to process the veneer. Electricity and natural gas are used in these assembly processes, as well as lighting. The temperature of the facility must be maintained for product preservation, further using electricity and natural gas.

4.3 PRODUCT TRANSPORT

Table 7. *Relevant transportation data for all product sets.*

Name	Unit	Value
Type of transport		Diesel, Low Sulfur (Truck)
Type of vehicle		EURO 4 Lorry
Distance	km	1.54E+03
Type and amount of energy carrier	liters/kg-100 km	4.46E-03 (per kg shipped)

4.4 PRODUCT INSTALLATION

Table 8. *Relevant product installation data for all product sets.*

Name	Unit	Value
Description of the installation process		Manual Installation
Ancillary materials	kg	0.00
Product loss per functional unit	kg	0.00
Energy use during installation (by energy carrier)	MJ	0.00
Water use during installation (by water source)	m^3	0.00
Direct emissions to ambient air, soil and water	kg	0.00
Packaging waste (specified by type)	kg	Cardboard (Set 1): 9.31E+00 Cardboard (Set 2): 1.04E+01 Cardboard (Set 3): 9.45E+00 Polyethylene (Set 1-3): 2.00E-01 Wood (Set 1): 3.41E+01 Wood (Set 2): 5.22E+01 Wood (Set 3): 7.13E+01
Biogenic carbon content of packaging	kg C	Cardboard: 9.02E-01 kg CO2e/kg Carboard Polyethylene: 0.00E+00 kg CO2e/kg Polyethylene Wood: 1.97E+00 kg CO2e/kg Wood

4.5 PRODUCT USE

Table 9. *Use phase assumptions applicable to all 3 Sets.*

Name	Unit	Value
Soaping Agent	kg	1.07E+00

For products that included energy to operate, total energy was determined by the product specifications. The electricity consumption usage requirements vary per hour. Depending on the number of occupants and the number of devices they are charging, the impacts are estimated to be 0.033 kWh - 0.130 kWh per user per hour, if the devices are laptops (wattage typically ranges from 33 to 130 W depending on the brand and model).

4.6 DISPOSAL

Transportation distance to the final disposal location was determined to be 32 km as per the EPA WARM model. All waste treatment was classified based on US EPA Municipal Solid Waste for Durable Goods. There are no known hazardous or toxic properties regarding improper disposal of the product.

Table 10.1 *Details about Product End of Life (VCP Veneer)*

Name		Unit	Value
Assumptions for scenario development			Assumed Disposal Pathways Align with US EPA Municipal Solid Waste for Durable Goods Assumed that the product is collected separately
Collection process (specified by type)	Collected separately	kg	1.19E+02
	Collected with mixed construction waste	kg	N/A
Recovery (specified by type)	Reuse	kg	N/A
	Recycling	kg	Aluminum 1.15E+00 Cardboard 6.33E+00 Glass 0.00E+00 Plastics 2.92E-01 Steel 6.18E+00 Stone 0.00E+00 Wood 1.38E+01
	Landfill	kg	Aluminum 4.62E+00 Cardboard 2.42E+00 Glass 0.00E+00 Plastics 2.47E+00 Steel 1.03E+01 Stone 0.00 Wood 5.44E+01
	Incineration	kg	Aluminum 9.50E-01 Cardboard 5.59E-01 Glass 0.00E+00 Plastics 5.19E-01 Steel 2.25E+00 Stone 0.00E+00 Wood 1.30E+01
Disposal (specified by type)	Product or material for final deposition	kg	Aluminum 6.72E+00 Cardboard 9.31E+00 Glass 0.00E+00 Plastics 3.28E+00 Steel 1.87E+01 Stone 0.00E+00 Wood 8.12E+01
Removals of biogenic carbon (excluding packaging)		kg C	Wood 9.27E+01

Table 11.2 *Details about Product End of Life (VCP Glass)*

Name		Unit	Value
Assumptions for scenario development			Assumed Disposal Pathways Align with US EPA Municipal Solid Waste for Durable Goods Assumed that the product is collected separately
Collection process (specified by type)	Collected separately	kg	1.44E+02
	Collected with mixed construction waste	kg	N/A
Recovery (specified by type)	Reuse	kg	N/A
	Recycling	kg	Aluminum 1.15E+00 Cardboard 7.10E+00 Glass 6.04E+00 Plastics 2.92E-01 Steel 6.18E+00 Stone 0.00E+00 Wood 1.38E+01
	Landfill	kg	Aluminum 4.62E+00 Cardboard 2.71E+00 Glass 1.50E+01 Plastics 2.47E+00 Steel 1.03E+01 Stone 0.00E+00 Wood 5.45E+01
	Incineration	kg	Aluminum 9.50E-01 Cardboard 6.26E-01 Glass 2.90E+00 Plastics 5.19E-01 Steel 2.25E+00 Stone 0.00E+00 Wood 1.30E+01
Disposal (specified by type)	Product or material for final deposition	kg	Aluminum 6.72E+00 Cardboard 1.04E+01 Glass 2.39E+01 Plastics 3.28E+00 Steel 1.87E+01 Stone 0.00E+00 Wood 8.13E+01
Removals of biogenic carbon (excluding packaging)		kg C	Wood 6.12E+01

Table 12.3 *Details about Product End of Life (VCP Stone)*

Name		Unit	Value
Assumptions for scenario development			Assumed Disposal Pathways Align with US EPA Municipal Solid Waste for Durable Goods Assumed that the product is collected separately
Collection process (specified by type)	Collected separately	kg	1.94E+02
	Collected with mixed construction waste	kg	N/A
Recovery (specified by type)	Reuse	kg	N/A
	Recycling	kg	Aluminum 1.15E+00 Cardboard 6.43E+00 Glass 0.00E+00 Plastics 2.92E-01 Steel 6.18E+00 Stone 0.00E+00 Wood 1.74E+01
	Landfill	kg	Aluminum 4.62E+00 Cardboard 2.46E+00 Glass 0.00E+00 Plastics 2.47E+00 Steel 1.03E+01 Stone 4.30E+01 Wood 6.86E+01
	Incineration	kg	Aluminum 9.50E-01 Cardboard 5.67E-01 Glass 0.00E-01 Plastics 5.19E-01 Steel 2.25E+00 Stone 1.08E+01 Wood 1.64E+01
Disposal (specified by type)	Product or material for final deposition	kg	Aluminum 6.72E+00 Cardboard 9.45E+00 Glass 0.00E+00 Plastics 3.28E+00 Steel 1.87E+01 Stone 5.38E+01 Wood 1.02E+02
Removals of biogenic carbon (excluding packaging)		kg C	Wood 6.12E+01

5. LCA: Results

Results of the Life Cycle Assessment are presented below. It is noted that LCA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

The following environmental impact category indicators are reported using characterization factors based on IPCC AR6, TRACI 2.1 and CML 4.8 LCIA methods information. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits.

Table 9. *LCIA Impact Categories reported*

Impact Category	Unit
GWP 100 (IPCC AR6)	kg CO2 eq
Acidification Potential (TRACI 2.1)	kg SO2 eq
Smog Formation Potential (TRACI 2.1)	kg O3 eq
Eutrophication Potential (TRACI 2.1)	kg N eq
Ozone Depletion Potential (TRACI 2.1)	kg CFC 11 eq
Formation of Tropospheric Ozone (CML)	kg C_2H_4 eq
Abiotic Depletion of Fossil Fuels (CML)	MJ

Table 10. *LCI Parameters reported, specified by the PCR*

Resources	Unit
Renewable Primary Energy Used as Energy Carrier [RPR_E]	MJ, LHV
Renewable Primary Energy resources used as raw materials [RPR_M]	MJ, LHV
Non-renewable Primary Energy Used as Energy Carrier [$NRPR_E$]	MJ, LHV
Non-renewable primary energy resources used as raw materials [$NRPR_M$]	MJ, LHV
Use of secondary materials [SM]	kg
Use of Renewable secondary fuels [RSF]	MJ, LHV
Use of non-renewable secondary fuels [NRSF]	MJ, LHV
Use of net fresh water resources [FW]	kg
Waste and Outflows	**Unit**
Hazardous waste disposed [HWD]	kg
Non-Hazardous waste disposed [NHWD]	kg
High Level Radioactive waste, conditioned, to final repository [HLRW]	kg
Intermediate/Low Level Radioactive waste, conditioned, to final repository [ILLRW]	kg
Components for reuse [CRU]	kg
Materials for recycling [MR]	kg
Materials for energy recovery [MER]	kg
Recovered Energy [RE]	MJ, LHV
Exported Energy [EE]	MJ, LHV
Biogenic Carbon	**Unit**
Global Warming Potential, including biogenic carbon [$GWP_{Biogenic}$]	kg CO2 eq
Biogenic Carbon Removed by Packaging [BCRK]	kg CO2 eq
Biogenic Carbon Emitted by Packaging [BCEK]	kg CO2 eq

Table 11.1 *Life Cycle Impact assessment results for 1 Functional Unit of VCP Veneer.*

Impact Category	Life cycle stage				
	A	B	C	D	Total
IPCC AR6					
Global Warming [kg CO_2 eq]	2.10E+02 47.07%	2.33E+02 52.38%	6.41E-01 0.14%	1.83E+00 0.41%	4.46E+02
TRACI 2.1					
Acidification [kg SO_2 eq]	1.19E+00 69.81%	5.32E-01 30.75%	1.96E-03 0.11%	4.02E-03 0.23%	1.73E+00
Eutrophication [kg N eq]	1.04E+00 47.24%	9.94E-01 45.22%	5.30E-02 2.41%	1.13E-01 5.13%	2.20E+00
Ozone Depletion [kg CFC-11eq]	6.56E-06 68.98%	2.92E-06 30.67%	1.35E-08 0.14%	1.97E-08 0.21%	9.51E-06
Smog [kg O_3 eq]	1.57E+01 55.37%	1.25E+01 44.15%	2.31E-02 0.08%	1.14E-01 0.40%	2.84E+01
CML 4.8					
Formation of Tropospheric Ozone [kg C_2H_4 eq]	8.59E-02 68.19%	3.94E-02 31.27%	3.20E-04 0.25%	3.58E-04 0.28%	1.26E-01
Abiotic depletion, fossil fuels [MJ]	2.47E+03 52.95%	2.18E+03 46.79%	2.05E+00 0.04%	1.00E+01 0.22%	4.66E+03

Table 11.2 *Life Cycle Inventory for 1 Functional Unit of VCP Veneer.*

Parameter	Life cycle stage				
	A	B	C	D	Total
Resources					
RPR_E [MJ, LHV]	1.37E+03 82.68%	2.76E+02 16.63%	1.50E+01 0.67%	4.05E-01 0.02%	1.66E+03
RPR_M [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
$NRPR_E$ [MJ, LHV]	2.82E+03 48.70%	2.96E+03 51.08%	2.28E+02 0.05%	1.05E+01 0.18%	5.80E+03
$NRPR_M$ [MJ, LHV]	1.00E+02 48.80%	1.04E+02 50.66%	2.14E+01 0.05%	1.00E+00 0.49%	2.05E+02
SM [kg]	7.07E+01 83.28%	1.55E+01 18.23%	3.08E-01 0.05%	-1.32E+00 -1.56%	8.49E+01
RSF [MJ, LHV]	4.03E+00 49.70%	4.06E+00 50.16%	7.44E-02 0.02%	9.46E-03 0.12%	8.10E+00
NRSF [MJ, LHV]	8.68E+00 36.48%	1.38E+01 57.90%	1.97E-01 0.05%	1.33E+00 5.57%	2.38E+01
FW [kg]	8.68E+03 72.73%	1.38E+04 26.57%	1.11E+01 1.49%	1.33E+03 0.20%	2.38E+04
RE [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste and Outflows					
HWD [kg]	4.51E+01 84.81%	7.94E+00 14.94%	2.81E-01 0.10%	8.07E-02 0.15%	5.31E+01
NHWD [kg]	2.05E+01 13.44%	9.95E+01 65.30%	1.67E+01 0.75%	3.12E+01 20.51%	1.52E+02
HLRW [kg]	1.32E-03 0.01%	1.90E+01 99.99%	8.88E-07 0.00%	1.17E-06 0.00%	1.90E+01
ILLRW [kg]	3.45E-03 0.01%	2.98E+01 99.99%	6.40E-05 0.00%	4.42E-06 0.00%	2.98E+01
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR [kg]	1.53E+01 30.26%	2.32E+01 45.94%	2.67E-01 0.06%	1.20E+01 23.74%	5.04E+01
MER [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic Carbon					
$GWP_{Biogenic}$ [kg CO_2 eq]	-1.24E+02	4.60E+01	-3.23E-01	6.10E+00	-7.27E+01
BCRK [kg CO_2 eq]	N/A	-8.43E+00	N/A	N/A	-8.43E+00
BCEK [kg CO_2 eq]	N/A	N/A	3.05E+00	N/A	3.05E+00

Table 12.1 *Life Cycle Impact assessment results for 1 Functional Unit of VCP Glass.*

Impact Category	Life cycle stage				
	A	B	C	D	Total
IPCC AR6					
Global Warming [kg CO_2 eq]	2.32E+02 42.63%	3.10E+02 56.87%	7.10E-01 0.13%	2.02E+00 0.37%	5.45E+02
TRACI 2.1					
Acidification [kg SO_2 eq]	1.32E+00 60.51%	8.55E-01 39.19%	2.17E-03 0.10%	4.45E-03 0.20%	2.18E+00
Eutrophication [kg N eq]	1.15E+00 46.23%	1.15E+00 46.39%	5.87E-02 2.36%	1.25E-01 5.02%	2.49E+00
Ozone Depletion [kg CFC-11eq]	7.27E-06 62.23%	4.38E-06 37.45%	1.50E-08 0.13%	2.18E-08 0.19%	1.17E-05
Smog [kg O_3 eq]	1.74E+01 50.51%	1.69E+01 49.05%	2.56E-02 0.07%	1.26E-01 0.37%	3.44E+01
CML 4.8					
Formation of Tropospheric Ozone [kg C_2H_4 eq]	9.52E-02 68.86%	4.23E-02 30.60%	3.54E-04 0.26%	3.97E-04 0.29%	1.38E-01
Abiotic depletion, fossil fuels [MJ]	2.73E+03 48.39%	2.90E+03 51.37%	2.27E+00 0.04%	1.11E+01 0.20%	5.64E+03

Table 12.2 *Life Cycle Inventory for 1 Functional Unit of VCP Glass.*

Parameter	Life cycle stage				
	A	B	C	D	Total
Resources					
RPR_E [MJ, LHV]	1.21E+03 65.90%	6.13E+02 33.47%	1.11E+01 0.61%	4.59E-01 0.03%	1.83E+03
RPR_M [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
$NRPR_E$ [MJ, LHV]	3.67E+03 57.18%	2.73E+03 42.56%	2.71E+02 0.04%	1.35E+01 0.21%	6.42E+03
$NRPR_M$ [MJ, LHV]	1.29E+02 57.12%	9.58E+01 42.28%	1.08E+01 0.05%	1.26E+00 0.56%	2.27E+02
SM [kg]	6.55E+01 69.59%	2.96E+01 31.45%	3.85E-01 0.04%	-1.02E+00 -1.09%	9.41E+01
RSF [MJ, LHV]	7.88E+00 87.80%	1.08E+00 12.07%	1.78E-03 0.02%	9.99E-03 0.11%	8.98E+00
NRSF [MJ, LHV]	1.87E+01 71.02%	-9.53E+00 -36.15%	2.17E-01 0.04%	1.72E+01 65.09%	2.64E+01
FW [kg]	3.23E+03 68.47%%	1.45E+03 30.74%	2.10E+01 0.45%	1.62E+01 0.34%	4.72E+03
RE [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste and Outflows					
HWD [kg]	4.79E+01 81.32%	1.08E+01 18.41%	5.14E-02 0.09%	1.04E-01 0.18%	5.89E+01
NHWD [kg]	4.18E+01 25.15%	8.17E+01 49.15%	1.15E+01 0.69%	4.16E+01 25.01%	1.66E+02
HLRW [kg]	1.39E-02 0.07%	2.10E+01 99.93%	4.92E-06 0.00%	1.09E-05 0.00%	2.10E+01
ILLRW [kg]	6.43E-03 0.02%	3.30E+01 99.98%	2.28E-06 0.00%	5.03E-06 0.00%	3.30E+01
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR [kg]	2.20E+01 39.44%	1.80E+01 32.11%	2.82E-02 0.05%	1.59E+01 28.40%	5.59E+01
MER [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic Carbon					
$GWP_{Biogenic}$ [kg CO_2 eq]	-6.93E+01	2.02E+01	-3.23E-01	4.41E+00	-4.51E+01
BCRK [kg CO_2 eq]	N/A	-9.41E+00	N/A	N/A	-9.41E+00
BCEK [kg CO_2 eq]	N/A	N/A	3.41E+00	N/A	3.41E+00

Table 13.1 *Life Cycle Impact assessment results for 1 Functional Unit of VCP Stone*

Impact Category	Life cycle stage				
	A	B	C	D	Total
IPCC AR6					
Global Warming [kg CO_2 eq]	2.36E+02 44.72%	2.89E+02 54.857%	6.41E-01 0.12%	1.63E+00 0.31%	5.27E+02
TRACI 2.1					
Acidification [kg SO_2 eq]	1.31E+00 65.79%	6.77E-01 33.91%	1.96E-03 0.10%	4.05E-03 0.20%	2.00E+00
Eutrophication [kg N eq]	1.10E+00 50.12%	9.67E-01 43.98%	5.30E-02 2.41%	7.67E-02 3.49%	2.20E+00
Ozone Depletion [kg CFC-11eq]	6.58E-06 63.14%	3.81E-06 36.52%	1.35E-08 0.13%	2.18E-08 0.21%	1.04E-05
Smog [kg O_3 eq]	1.80E+01 50.79%	1.73E+01 48.83%	2.31E-02 0.07%	1.12E-01 0.32%	3.55E+01
CML 4.8					
Formation of Tropospheric Ozone [kg C_2H_4 eq]	8.28E-02 65.11%	4.38E-02 34.41%	3.19E-04 0.25%	2.96E-04 0.23%	1.27E-01
Abiotic depletion, fossil fuels [MJ]	2.67E+03 46.75%	3.02E+03 53.02%	2.05E+00 0.04%	1.12E+01 0.20%	5.70E+03

Table 13.2 *Life Cycle Inventory for 1 Functional Unit of VCP Stone.*

Parameter	Life cycle stage				
	A	B	C	D	Total
Resources					
RPR_E [MJ, LHV]	2.05E+03 82.78%	4.10E+02 16.52%	1.67E+01 0.79%	6.07E-01 0.02%	2.48E+03
RPR_M [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
$NRPR_E$ [MJ, LHV]	4.23E+03 48.72%	4.43E+03 51.05%	4.06E+00 .67%	1.58E+01 0.18%	8.69E+03
$NRPR_M$ [MJ, LHV]	1.50E+02 48.91%	1.55E+02 50.55%	1.62E-01 0.05%	1.51E+00 0.49%	3.07E+02
SM [kg]	1.06E+02 83.27%	2.32E+01 18.24%	5.76E-02 0.05%	-1.98E+00 -1.56%	1.27E+02
RSF [MJ, LHV]	6.03E+00 49.67%	6.10E+00 50.19%	2.67E-03 0.02%	1.42E-02 0.12%	1.21E+01
NRSF [MJ, LHV]	1.30E+01 36.46%	2.07E+01 57.92%	1.66E-02 0.05%	1.99E+00 5.57%	3.57E+01
FW [kg]	4.67E+03 73.07%	1.68E+03 26.23%	3.15E-02 0.49%	1.31E+01 0.20%	6.39E+03
RE [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste and Outflows					
HWD [kg]	6.76E+01 84.79%	1.19E+01 14.96%	7.71E-02 0.10%	1.21E-01 0.15%	7.97E+01
NHWD [kg]	3.07E+01 25.87%	3.94E+01 33.20%	1.72E+00 1.45%	4.68E+01 39.48%	1.19E+02
HLRW [kg]	1.51E-03 0.01%	2.84E+01 99.99%	8.88E-07 0.00%	1.23E-06 0.00%	2.84E+01
ILLRW [kg]	3.90E-03 0.01%	4.46E+01 99.99%	2.28E-06 0.00%	4.50E-06 0.00%	4.46E+01
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR [kg]	2.29E+01 30.23%	3.48E+01 45.99%	4.22E-02 0.06%	1.79E+01 23.72%	7.57E+01
MER [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic Carbon					
$GWP_{Biogenic}$ [kg CO_2 eq]	-1.87E+02	1.17E+02	-4.85E-01	9.15E+00	-6.10E+01
BCRK [kg CO_2 eq]	N/A	-8.53E+00	N/A	N/A	-8.53E+00
BCEK [kg CO_2 eq]	N/A	N/A	3.09E+00	N/A	3.09E+00

6. LCA: Interpretation

Table 14. *A* comparison of all Veneer Products.

Indicator	VCP Veneer	VOP Veneer	% Change	VVN Veneer	% Change	VCP Veneer PD	% Change
GWP (kg CO2 eq)	4.45E+02	3.85E+02	-13%	4.85E+02	9%	5.09E+02	14%
Acidification (kg SO2 eq)	1.73E+00	1.48E+00	-14%	1.89E+00	9%	1.91E+00	10%
Eutrophication (kg N eq)	2.20E+00	1.98E+00	-10%	2.42E+00	10%	2.35E+00	7%
Ozone (kg CFC-11 eq)	9.51E-06	8.33E-06	-12%	1.02E-05	7%	1.03E-05	9%
Smog (kg O3 eq)	2.84E+01	2.51E+01	-11%	3.15E+01	11%	3.25E+01	15%
Formation of Tropospheric Ozone (kg C_2H_4)	1.26E-01	1.10E-01	-13%	1.40E-01	11%	1.36E-01	8%
Abiotic Depletion of Fossil Fuels (MJ)	4.66E+03	3962.568	-15%	5.10E+03	10%	5.40E+03	16%

Table 15. *A comparison of the Closed Panel Products.*

Indicator	VCP Veneer	VCP Stone	% Change	VCP Glass	% Change
GWP (kg CO2 eq)	4.45E+02	5.27E+02	18%	5.45E+02	22%
Acidification (kg SO2 eq)	1.73E+00	2.00E+00	16%	2.18E+00	26%
Eutrophication (kg N eq)	2.20E+00	2.20E+00	0%	2.49E+00	13%
Ozone (kg CFC-11 eq)	9.51E-06	1.04E-05	10%	1.17E-05	23%
Smog (kg O3 eq)	2.84E+01	3.55E+01	25%	3.44E+01	21%
Formation of Tropospheric Ozone (kg C_2H_4)	1.26E-01	1.27E-01	1%	1.38E-01	10%
Abiotic Depletion of Fossil Fuels (MJ)	4.66E+03	5.70E+03	22%	5.64E+03	21%

The least materially impactful product was VOP Veneer, the model with a Veneer Top and an Open Panel Veneer Base, and thus has the lower overall environmental impacts from an LCA perspective.

In general, Raw material acquisition of aluminum was by far the largest contributor to the product's environmental impact. Within the gate-to-gate (production) boundary, electricity consumption at Nucraft's facility was the largest contributor.

To reduce environmental impact associated with their products, Nucraft seeks to evaluate, select, and use the best materials to reduce the life-cycle carbon footprint of Ascari Tables, to increase the amount of recycled content in the aluminum and steel they source, and to investigate and implement energy efficiency and reduction projects.

7. Additional Environmental Information

7.1 ENVIRONMENT AND HEALTH DURING MANUFACTURING

Nucraft has received recognition as a Rising STAR Participant in the Michigan Voluntary Protection Program "for the company's successful efforts in partnering for excellence in workplace safety and health."

7.2 ENVIRONMENT AND HEALTH DURING INSTALLATION OR USE

There are no environmental or health impacts during installation to report.

7.3 ENVIRONMENTAL ACTIVITIES AND CERTIFICATIONS

Ascari Conference Tables are Indoor Advantage™ Gold Indoor Air Quality Certified to SCS-105 v4.2 Conforms to the ANSI/BIFMA Furniture Emissions Standard (M7.1/X7.1-2011 R2021) and ANSI/BIFMA e.3-2019 (Credits 7.6.2, 7.6.3) private office workstation parameters[1]. Certificate # SCS-IAQ-11077

Nucraft provides FSC 100%; FSC Mix certified wood as an option for their products. The customer can specify the use FSC while ordering Ascari Conference Tables. Certificate Code: SCS-COC-001174. Trademark License Code: FSC-C017300

Finally, Nucraft's Offices are LEED SILVER certified.

7.4 FURTHER INFORMATION

For further information, please visit www.nucraft.com or contact Nucraft via 616.784.6016

8. References

1. Nucraft, Foresight Management. Life-Cycle Assessment of Ascari™ Conference Tables. January 16, 2024.
2. ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and Procedures.
3. ISO 14040: 2006 Environmental Management – Life cycle assessment – Principles and Framework
4. ISO 14044: 2006/Amd 1:2017/ Amd 2:2020 Environmental Management – Life cycle assessment – Requirements and Guidelines.
5. ISO 21930: 2017 Sustainability in building construction – Environmental declaration of building products.
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For more information, contact:

NUCRAFT

Nucraft
5151 W River Drive NE, Comstock Park, MI 49321
https://www.nucraft.com | 877.682.7238

foresight
MANAGEMENT

LCA Practitioner:
Foresight Management
1425 Coit Avenue NE, Suite #100, Grand Rapids, MI 49505
Fsmgmt.co | 888.389.4668

SCSglobal SERVICES

SCS Global Services
2000 Powell Street, Ste. 600, Emeryville, CA 94608 USA
Main +1.510.452.8000 | fax +1.510.452.8001