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:
Summit Lectern

Functional Unit
The functional unit is 12 Lecterns: 0.34 m3 for Fixed Models, 0.16 m3 for Height Adjustable Models

EPD Number and Period of Validity
SCS-EPD-10421
EPD Valid May 15, 2025 through May 14, 2030

Product Category Rule
BIFMA PCR for Storage: UN Central Product Classification system, Class 3812

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-10421*
Date of Issue:	*May 15, 2025*
Declaration Validity Period:	*EPD Valid May 15, 2025 through May 14, 2030*
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):	Summit Lectern
Functional Unit:	12 Lecterns: 0.34 m3 for Fixed Model, 0.16 m3 for Adjustable Model
Product RSL:	10 Years
Product Subcategory:	Lecterns
Markets of Applicability:	North America
Year(s) of Reported Manufacturer Primary Data:	October 2023 – September 2024
LCA Software & Version Number:	openLCA 2.3.0
LCI Database(s) & Version Number:	Ecoinvent 3.9.1, TRACI 2.1, CML 4.8, EN15804
LCA Practitioner:	Sahil Akolawala
Reference PCR:	BIFMA PCR for Storage: UN Central Product Classification system, Class 3812. Valid through September 20, 2027.
Sub-category PCR review:	N/A
Independent critical review of the LCA and data, according to ISO 14044 and the PCR:	☐ internal ☒ external
LCA Reviewer:	U. U. Talaty Urvi Talaty, SCS Global Services
Independent verification of the declaration and data, according to ISO 14025 and the PCR:	☐ internal ☒ external
EPD Verifier:	U. U. Talaty Urvi Talaty, SCS Global Services
Declaration Contents:	

Disclaimers: *An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication.*

Conformity: *This EPD conforms to ISO 14040, ISO 14044, and BIFMA PCR for Storage. Product has been tested by an accredited testing facility documenting the functional unit (product) met requirements of ANSI/BIFMA X5.9: Storage Units testing standard*

Ownership: *The EPD owner has the sole ownership, liability, and responsibility of the EPD.*

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

Comparability: *Environmental declarations from different programs (ISO 14040) may not be comparable. This EPD 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 software tool used to conduct the study. Comparability of EPDs is limited to those applying a functional unit.*

The owner of the declaration shall be liable for the underlying information and evidence; SCS shall not be liable with respect to manufacturer information, life cycle assessment data, and evidence supplied or made available to SCS.

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. Summit Lectern™

2.1 KEY ENVIRONMENTAL PARAMETERS

Product	Abbreviation	Primary Energy Demand [MJ, LHV]	Recycled Content	
			Pre-consumer %	Post-consumer %
Fixed height lectern with a painted worksurface and case	Fixed Painted	7.53E04	37%	14%
Height Adjustable lectern with a painted worksurface and case	Adj. Painted	1.18E04	32%	21%

2.2 PRODUCT DESCRIPTION

Designed with the modern-day meeting in mind, Summit Lectern elegantly instills confidence in any presenter. The Lectern is offered in two styles: fixed height and height adjustable. Features include: fidget grips for presenter concentration, simplex and USB-C power connection, cord management, and ease of movement provided by hidden caster and glide system.

Figure 1: *Fixed height lectern with a painted worksurface and case*

Figure 2: *Fixed Height lectern with a veneer worksurface and case*

Figure 3: *Height Adjustable lectern with a painted worksurface and case*

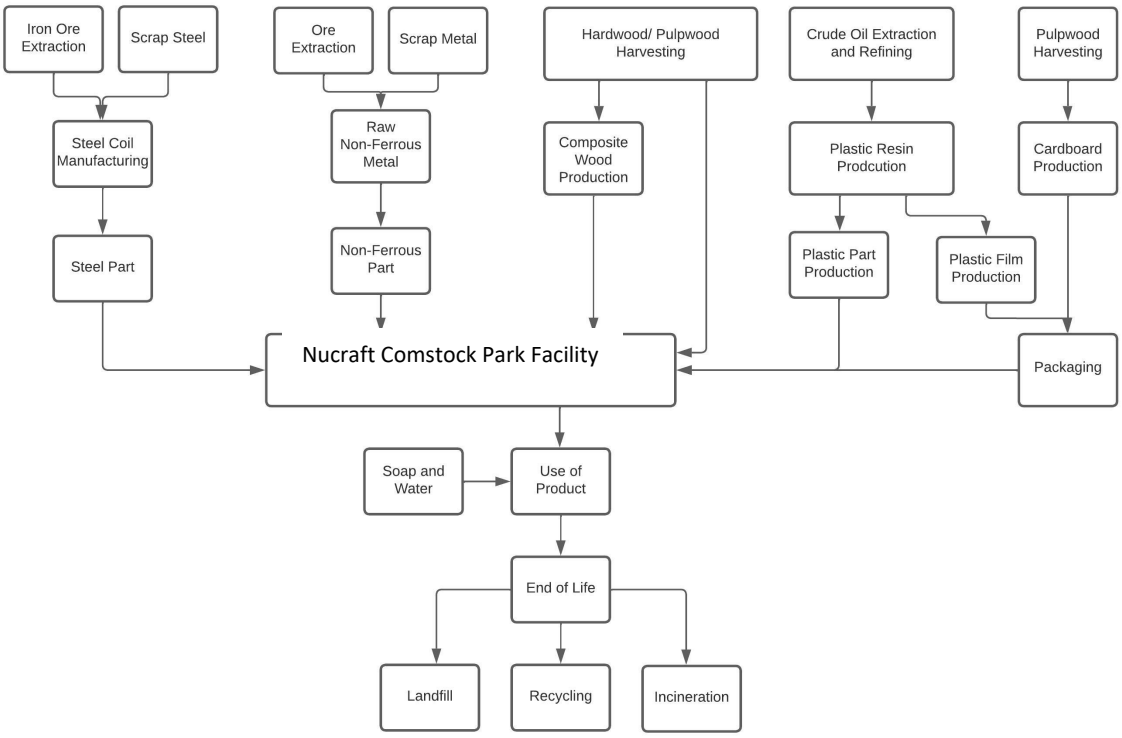
Figure 4: *Height Adjustable lectern with a veneer worksurface and case*

2.3 PRODUCT SPECIFICATION

Base model: Summit Lectern with fixed height (30x20x40) and painted worksurface and case. (Model # SMFH-3040-P)

The remaining model numbers are as follows: SMFH-3040-V, SMHA-3034-P, SMHA-3034-V

2.4 FLOW DIAGRAM



2.5 PRODUCT AVERAGE

This study contains four (4) configurations of the Summit Lectern™, with two (2) sets of representative results:

Set 1
(Fixed Painted): Fixed height lectern with a painted finish (Representative)
(Fixed Veneer): Fixed height lectern with a veneer laminate finish.
Set 2
(Adjustable Painted): Adjustable height lectern with a painted finish (Representative)
(Adjustable Veneer): Adjustable height lectern with a veneer laminate finish.

2.6 APPLICATION

The intended application of this product is to provide an attractive and functional lectern in an office setting.

3. Methodological Framework

3.1 FUNCTIONAL UNIT

The product has a functional unit of 12 Lecterns: 0.34 m^3 of storage volume for Fixed Model, 0.16 m^3 of storage volume for Adjustable Model to align with the applicable product category rules (PCR).

Set 1 (Fixed Painted): 633 kg of mass and 0.34 m^3 of storage volume required for 10 years.

Set 2 (Adj. Painted): 809 kg of mass and 0.16 m^3 of storage volume required for 10 years.

3.2 SYSTEM BOUNDARY

Table 1. *System Boundary.*

Stage A					Stage B							Stage C			
Product Stage			Construction Process Stage		Use Stage							End of Life Stage			
Extraction and Upstream Production	Transportation to Factory	Manufacturing	Transport to site	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction/ Demolition	Transport	Waste Processing	Disposal of Waste
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4

3.3 MODULE CONTRIBUTION

All modules were considered but only those with significant and relevant impacts were modelled.

Production and Construction

[A1] Significant contributor, raw material acquisition has large associated emissions
[A2] Significant contributor, transport has large associated emissions
[A3] Significant contributor, large associated emissions and HNI's direct controlled step
[A4] Significant contributor, transport has large associated emissions
[A5] Insignificant impact, emission-less hand tool installation is standard and assumed

Use

[B1] Irrelevant impact, no emissions associated with product use
[B2] known impact, only impact associated with the use phase of standard office furniture
[B3] Irrelevant impact, if product repair occurs, it is not Nucraft's burden
[B4] Irrelevant impact, no standard product replacement, any extra product production due to replacement would is accounted in allocation of facility flows
[B5] No known impact, no standard refurbishment or associated emissions
[B6] Insignificant impact – Potential Impact, operational energy use by product varies based on type of product and application, and would require multiple scenarios
[B7] Irrelevant impact, no operational water use
End of Life
[C1] Insignificant impact, emission-less hand tool installation is standard and assumed

[C2] Significant contributor, transport has large associated emissions
[C3] Irrelevant impact, no additional waste process prior to disposal is known for any materials
[C4] Significant contributor, disposal has large associated emissions

3.4 ALLOCATION

This study is inclusive of all 4 products named in Section 2.5. Since there are no other co-products, no allocation based on co-products is required. A Cradle-to-Grave 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 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 Summit Lectern™ 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

Flow	Dataset	Data Source	Publication Date
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 Summit Lectern 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 October 2023 to September 2024. 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.

Data Quality Parameter	Data Quality Discussion
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 independent practitioner to reproduce the results reported in the study	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.
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 from October 2023 to September 2024 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 from Ecoinvent 3.9 with reference years ending in 2022.

3.9 COMPARABILITY AND BENCHMARKING

This EPD shall conform to the requirements of this PCR for Storage Products and 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 software tool used to conduct the study.

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 2023-2024 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 October 2023 – September 2024 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 October 2023 – September 2024. The totals over the collection period were divided by total sales during that period to derive a usage-per-sales.
    - 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 2044 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:

- 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 Set 1: Fixed Painted*

Material	kg/FU	Percent	Pre-consumer Recycled Content %	Post-consumer Recycled Content %
ABS	3.30E-01	0.1%	0%	0%
ALUMINUM	1.04E+01	1.6%	61%	9%
ELEC	1.60E+01	2.5%	0%	0%
HARDWOOD	4.01E+01	6.3%	0%	0%
LAMINATE	3.61E+01	5.7%	0%	0%
MDF	3.22E+01	5.1%	81%	0%
PARTICLE BOARD	1.35E+02	21.4%	87%	0%
PLYWOOD	0.00E+00	0.0%	0%	0%
STEEL	0.00E+00	0.0%	0%	0%
VENEER	0.00E+00	0.0%	0%	0%
STEEL HR	2.86E+02	45.3%	28%	18%
STEEL CR	7.59E+01	12.0%	3%	14%
Total:	6.32E+02	100.00%		

Table 5.2 *Material composition of the functional unit for Set 2: Adj. Painted*

Material	Kg/FU	Percent	Pre-consumer Recycled Content %	Post-consumer Recycled Content %
ABS	2.20E-01	0.0%	0%	0%
ALUMINUM	1.04E+01	1.3%	61%	9%
ELEC	2.52E+01	3.1%	6%	1%
HARDWOOD	4.88E+01	6.0%	0%	0%
LAMINATE	3.22E+01	4.0%	0%	0%
MDF	2.47E+01	3.1%	82%	0%
PARTICLE BOARD	1.53E+02	18.9%	86%	0%
PLYWOOD	0.00E+00	0.0%	0%	0%
STEEL	1.46E+02	18.0%	25%	4%
VENEER	0.00E+00	0.0%	0%	0%
STEEL HR	2.00E+02	24.7%	5%	69%
STEEL CR	1.69E+02	20.9%	26%	21%
Total:	8.10E+02	100.00%		

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 6. *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	2.04E+03
Type and amount of energy carrier	liters/kg-100 km	4.46E-03 (per kg shipped)

4.4 PRODUCT INSTALLATION

Table 7. *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 1-2): 8.33E+01 Polyethylene (Set 1-2): 1.36E+01 Wood (Set 1-2): 1.22E+02
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 8. *Use phase assumptions applicable to all 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). In order to raise and lower the adjustable lectern models, it takes 0.001 kWh, assuming one raising and lowering per hour of use. This translates to .408 kWh – 1.572 kWh per hour for 12 lecterns. Any replacement of products that are required to meet the 10-year RSL outlined in the PCR are represented in modules A and B. All use phase assumptions are listed in Table 7.

4.6 DISPOSAL

The distance to the final disposal location was determined to be 20 miles as per the EPA WARM model. The fate of the product and packaging was determined based on market methods and values from Ecoinvent. The disposal methods and ratios can be seen in Tables 8.1 and 8.2. All the aluminum in the product can be recycled, and the product can be reused within the same building in a room with similar specifications. All waste treatment was classified based on US EPA Municipal Waste for Durable Goods. There are no known hazardous or toxic properties regarding improper disposal of the product.

Table 9.1 *Details about Product End of Life (Fixed Painted)*

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	6.32E+02	
	Collected with mixed construction waste	kg	N/A	
Recovery (specified by type)	Reuse	kg	N/A	
	Recycling	%	Steel	33%
			Aluminum	17%
			Wood	17%
			Plastics	9%
			Foam	9%
			Textiles	15%
			Glass	25%
			Stone	0%
			Cardboard	68%
			Non-Ferrous Metals	67%
			Rubber and Leather	40%
			Other Materials	21%
	Landfill	%	Steel	55%
			Aluminum	68%
			Wood	67%
			Plastics	76%
			Foam	76%
			Textiles	66%
			Glass	62%
			Stone	80%
			Cardboard	26%
			Non-Ferrous Metals	29%
			Rubber and Leather	19%
			Other Materials	64%
	Incineration	%	Steel	12%
			Aluminum	14%
			Wood	16%
			Plastics	16%
			Foam	16%

Name		Unit	Value
			Textiles 19% Glass 12% Stone 20% Cardboard 6% Non-Ferrous Metals 3% Rubber and Leather 41% Other Materials 15%
Disposal (specified by type)	Product or material for final deposition	kg	Aluminum: 1.04E+01 Other Materials: 1.60E+01 Plastic: 3.32E-01 Steel: 3.62E+02 Wood: 2.43E+02

Table 10.2 *Details about Product End of Life (Adj. Painted)*

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	8.09E+02
	Collected with mixed construction waste	kg	N/A
Recovery (specified by type)	Reuse	kg	N/A
	Recycling	%	Steel 33% Aluminum 17% Wood 17% Plastics 9% Foam 9% Textiles 15% Glass 25% Stone 0% Cardboard 68% Non-Ferrous Metals 67% Rubber and Leather 40% Other Materials 21%
	Landfill	%	Steel 55% Aluminum 68% Wood 67% Plastics 76% Foam 76% Textiles 66% Glass 62% Stone 80% Cardboard 26% Non-Ferrous Metals 29%

Name		Unit	Value
			Rubber and Leather 19% Other Materials 64%
	Incineration	%	Steel 12% Aluminum 14% Wood 16% Plastics 16% Foam 16% Textiles 19% Glass 12% Stone 20% Cardboard 6% Non-Ferrous Metals 3% Rubber and Leather 41% Other Materials 15%
Disposal (specified by type)	Product or material for final deposition	kg	Aluminum: 1.04E+01 Other Materials 2.51E+01 Plastic 2.18E-01 Steel 5.15E+02 Wood 2.59E+02

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

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

Table 11.1 *Life Cycle Impact assessment results for 1 Functional Unit of Fixed Painted.*

Impact Category	Life cycle stage								
	A1	A2	A3	A4	A5	B2	C2	C4	Total
IPCC AR6									
Global Warming [kg CO_2 eq]	1.11E+03 28.8%	5.31E+00 0.1%	2.48E+03 64.2%	1.89E+02 4.9%	6.10E+00 0.2%	1.31E+01 0.3%	2.98E+00 0.1%	4.94E+01 1.3%	3.86E+03 100.0%
TRACI 2.1									
Acidification [kg SO_2 eq]	8.09E+00 28.8%	1.95E-02 0.1%	6.65E+00 64.2%	6.89E-01 4.9%	1.25E-02 0.2%	8.74E-02 0.3%	1.08E-02 0.1%	2.22E-02 1.3%	1.56E+01 100.0%
Eutrophication [kg N eq]	9.20E+00 41.6%	4.50E-03 0.0%	8.95E+00 40.5%	1.59E-01 0.7%	6.26E-01 2.8%	2.36E+00 10.7%	2.50E-03 0.0%	8.24E-01 3.7%	2.21E+01 100.0%
Ozone Depletion [kg CFC-11eq]	5.57E-05 28.8%	1.26E-07 0.1%	3.97E-05 64.2%	4.44E-06 4.9%	5.11E-08 0.2%	6.02E-07 0.3%	6.99E-08 0.1%	1.31E-07 1.3%	1.01E-04 100.0%
Smog [kg O_3 eq]	1.06E+02 28.8%	3.97E-01 0.1%	7.97E+01 64.2%	2.39E+01 4.9%	3.83E-01 0.2%	1.03E+00 0.3%	2.83E-01 0.1%	6.72E-01 1.3%	2.12E+02 100.0%
CML 4.8									
Formation of Tropospheric Ozone [kg C_2H_4 eq]	6.60E-01 28.8%	8.31E-04 0.1%	3.91E-01 64.2%	2.94E-02 4.9%	1.60E-03 0.2%	1.42E-02 0.3%	4.63E-04 0.1%	1.95E-03 1.3%	1.10E+00 100.0%

Table 11.2 *Life Cycle Inventory for 1 Functional Unit of Fixed Painted.*

Parameter	Life Cycle Stage								
	A1	A2	A3	A4	A5	B2	C2	C4	Total
Resources									
RPR_E [MJ, LHV]	6.42E+03 63.2%	1.21E+00 0.0%	3.19E+03 31.4%	4.28E+01 0.4%	1.06E+00 0.0%	4.96E+02 4.9%	6.74E-01 0.0%	1.46E+00 0.0%	1.01E+04 100.0%
RPR_M [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
$NRPR_E$ [MJ, LHV]	1.82E+04 28.7%	7.06E+01 0.1%	4.23E+04 66.9%	2.49E+03 3.9%	2.35E+01 0.0%	1.21E+02 0.2%	3.93E+01 0.1%	3.47E+01 0.1%	6.33E+04 100.0%
$NRPR_M$ [MJ, LHV]	5.62E+02 30.2%	6.69E+00 0.1%	1.04E+03 10.3%	2.37E+02 2.3%	2.16E+00 0.0%	4.83E+00 0.0%	3.72E+00 0.0%	3.08E+00 0.0%	1.86E+03 18.4%
SM [kg]	3.60E+02 58.7%	6.60E-02 0.0%	2.52E+02 41.2%	3.97E+00 0.6%	5.88E-02 0.0%	1.71E+00 0.3%	4.70E-02 0.0%	-5.21E+00 -0.8%	6.13E+02 100.0%
RSF [MJ, LHV]	1.93E+01 20.1%	1.78E-02 0.0%	7.59E+01 78.9%	8.39E-01 0.9%	2.24E-02 0.0%	7.96E-02 0.1%	1.32E-02 0.0%	2.25E-02 0.0%	9.62E+01 100.0%
NRSF [MJ, LHV]	5.63E+01 16.6%	4.55E-02 0.0%	2.74E+02 80.8%	2.14E+00 0.6%	2.67E-02 0.0%	4.94E-01 0.1%	3.37E-02 0.0%	5.89E+00 1.7%	3.39E+02 100.0%
FW [kg]	1.12E+01 46.3%	7.72E-03 0.0%	1.15E+01 47.5%	4.64E-01 1.9%	4.25E-02 0.2%	9.37E-01 3.9%	5.49E-03 0.0%	4.96E-02 0.2%	2.42E+01 100.0%
RE [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste and Outflows									
HWD [kg]	3.66E+02 77.5%	5.63E-02 0.0%	1.01E+02 21.4%	2.65E+00 0.6%	1.93E-01 0.0%	2.29E+00 0.5%	4.18E-02 0.0%	2.72E-01 0.1%	4.72E+02 100.0%
NHWD [kg]	1.58E+02 15.9%	3.81E+00 0.4%	3.14E+02 31.8%	1.80E+02 18.2%	1.05E+02 10.7%	5.11E+01 5.2%	2.83E+00 0.3%	1.74E+02 17.6%	9.89E+02 100.0%
HLRW [kg]	1.63E-06 7.8%	9.14E-10 0.0%	7.95E-06 38.4%	4.30E-08 0.2%	1.11E-05 53.5%	7.33E-09 0.0%	6.77E-10 0.0%	6.54E-10 0.0%	2.07E-05 100.0%
ILLRW [kg]	8.12E-06 10.2%	6.06E-09 0.0%	6.82E-05 85.6%	2.85E-07 0.4%	3.04E-06 3.8%	4.06E-08 0.1%	4.49E-09 0.0%	4.80E-09 0.0%	7.97E-05 100.0%
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR [kg]	1.84E+02 35.7%	5.85E-02 0.0%	1.75E+02 34.0%	2.76E+00 0.5%	7.85E+01 15.2%	1.26E+00 0.2%	4.34E-02 0.0%	7.36E+01 14.3%	5.15E+02 100.0%
MER [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 12.1 *Life Cycle Impact assessment results for 1 Functional Unit of Adjustable Painted.*

Impact Category	Life cycle stage								
	A1	A2	A3	A4	A5	B2	C2	C4	Total
IPCC AR6									
Global Warming [kg CO2 eq]	1.67E+03 31.1%	4.02E+01 0.7%	3.35E+03 62.3%	2.42E+02 4.5%	6.10E+00 0.1%	1.31E+01 0.2%	3.80E+00 0.1%	4.68E+01 0.9%	5.38E+03 100.0%
TRACI 2.1									
Acidification [kg SO_2 eq]	1.17E+01 53.9%	1.48E-01 0.7%	8.84E+00 40.7%	8.82E-01 4.1%	1.25E-02 0.1%	8.74E-02 0.4%	1.39E-02 0.1%	2.26E-02 0.1%	2.17E+01 100.0%
Eutrophication [kg N eq]	1.33E+01 45.7%	3.40E-02 0.1%	1.17E+01 40.5%	2.03E-01 0.7%	6.26E-01 2.2%	2.36E+00 8.2%	3.20E-03 0.0%	7.77E-01 2.7%	2.90E+01 100.0%
Ozone Depletion [kg CFC-11eq]	7.89E-05 56.5%	9.51E-07 0.7%	5.33E-05 38.1%	5.68E-06 4.1%	5.11E-08 0.0%	6.02E-07 0.4%	8.95E-08 0.1%	1.37E-07 0.1%	1.40E-04 100.0%
Smog [kg O_3 eq]	1.45E+02 51.0%	3.85E+00 1.4%	1.03E+02 36.5%	2.89E+01 10.2%	3.78E-01 0.1%	1.03E+00 0.4%	3.62E-01 0.1%	6.89E-01 0.2%	2.83E+02 100.0%
CML 4.8									
Formation of Tropospheric Ozone [kg C_2H_4 eq]	8.95E-01 60.8%	6.29E-03 0.4%	5.16E-01 35.0%	3.76E-02 2.6%	1.60E-03 0.1%	1.42E-02 1.0%	5.92E-04 0.0%	1.93E-03 0.1%	1.47E+00 100.0%

Table 12.2 *Life Cycle Inventory for 1 Functional Unit of Adjustable Painted.*

Parameter	Life cycle stage								
	A1	A2	A3	A4	A5	B2	C2	C4	Total
Resources									
RPR_E [MJ, LHV]	7.40E+03	9.16E+00	3.81E+03	5.48E+01	1.06E+00	4.96E+02	8.62E-01	1.20E+00	1.18E+04
	62.9%	0.1%	32.3%	0.5%	0.0%	4.2%	0.0%	0.0%	100.0%
RPR_M [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
$NRPR_E$ [MJ, LHV]	2.46E+04	5.34E+02	5.71E+04	3.19E+03	2.35E+01	1.21E+02	5.02E+01	3.98E+01	8.57E+04
	28.7%	0.6%	66.6%	3.7%	0.0%	0.1%	0.1%	0.0%	100.0%
$NRPR_M$ [MJ, LHV]	7.55E+02	5.06E+01	1.37E+03	3.03E+02	2.16E+00	4.83E+00	4.76E+00	3.64E+00	2.50E+03
	30.2%	0.4%	11.7%	2.6%	0.0%	0.0%	0.0%	0.0%	21.2%
SM [kg]	5.11E+02	6.39E-01	3.09E+02	4.81E+00	5.88E-02	1.71E+00	6.01E-02	-1.05E+01	8.16E+02
	62.6%	0.1%	37.8%	0.6%	0.0%	0.2%	0.0%	-1.3%	100.0%
RSF [MJ, LHV]	2.56E+01	1.73E-01	1.02E+02	1.30E+00	2.24E-02	7.96E-02	1.62E-02	2.80E-02	1.30E+02
	19.7%	0.1%	79.0%	1.0%	0.0%	0.1%	0.0%	0.0%	100.0%
NRSF [MJ, LHV]	7.43E+01	4.41E-01	3.71E+02	3.31E+00	2.67E-02	4.94E-01	4.15E-02	8.25E+00	4.58E+02
	16.2%	0.1%	81.0%	0.7%	0.0%	0.1%	0.0%	1.8%	100.0%
FW [kg]	1.69E+01	7.47E-02	1.43E+01	5.62E-01	4.25E-02	9.37E-01	7.03E-03	5.08E-02	3.29E+01
	51.5%	0.2%	43.4%	1.7%	0.1%	2.9%	0.0%	0.2%	100.0%
RE [MJ, LHV]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Waste and Outflows									
HWD [kg]	4.67E+02	5.45E-01	1.34E+02	4.10E+00	1.93E-01	2.29E+00	5.13E-02	3.44E-01	6.09E+02
	76.8%	0.1%	22.0%	0.7%	0.0%	0.4%	0.0%	0.1%	100.0%
NHWD [kg]	2.04E+02	3.69E+01	4.07E+02	2.78E+02	1.05E+02	5.11E+01	3.47E+00	2.05E+02	1.29E+03
	15.8%	2.9%	31.5%	21.5%	8.2%	4.0%	0.3%	15.9%	100.0%
HLRW [kg]	2.26E-06	8.84E-09	1.08E-05	6.65E-08	1.11E-05	7.33E-09	8.32E-10	7.10E-10	2.42E-05
	9.3%	0.0%	44.5%	0.3%	45.8%	0.0%	0.0%	0.0%	100.0%
ILLRW [kg]	1.13E-05	5.86E-08	9.25E-05	4.41E-07	3.04E-06	4.06E-08	5.51E-09	5.45E-09	1.07E-04
	10.6%	0.1%	86.1%	0.4%	2.8%	0.0%	0.0%	0.0%	100.0%
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR [kg]	5.01E+02	1.13E+00	4.58E+02	8.52E+00	7.85E+01	2.51E+00	1.07E-01	1.81E+02	1.23E+03
	40.7%	0.1%	37.2%	0.7%	6.4%	0.2%	0.0%	14.7%	100.0%
MER [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00

6. LCA: Interpretation

Table 15. *A comparison of all Fixed Products.*

Indicator	Fixed Painted	Fixed Veneer	% Change
GWP (kg CO2 eq)	3.86E+03	3.90E+03	-1.03%
Acidification (kg SO2 eq)	1.56E+01	1.60E+01	-2.50%
Eutrophication (kg N eq)	2.15E+01	2.23E+01	-3.59%
Ozone (kg CFC-11 eq)	1.01E-04	1.02E-04	-0.98%
Smog (kg O3 eq)	3.28E+02	3.30E+02	-0.61%
Formation of Tropospheric Ozone (kg C_2H_4)	1.10E+00	1.12E+00	-1.79%

Table 16. *A comparison of the Height Adjustable Products.*

Indicator	Adjustable Painted	Adjustable Veneer	% Change
GWP (kg CO2 eq)	5.37E+03	5.19E+03	3.47%
Acidification (kg SO2 eq)	2.17E+01	2.16E+01	0.46%
Eutrophication (kg N eq)	2.84E+01	2.83E+01	0.35%
Ozone (kg CFC-11 eq)	1.40E-04	1.39E-04	0.72%
Smog (kg O3 eq)	4.46E+02	4.42E+02	0.90%
Formation of Tropospheric Ozone (kg C_2H_4)	1.47E+00	1.47E+00	0.00%

In general, Raw material acquisition of steel 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 Summit Lecterns, 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

Summit Lecterns are Indoor Advantage™ Gold Certified, conforming to ANSI/BIFMA e.3-2019 (Credits 7.6.1, 7.6.2, 7.6.3) for the open plan and private office workspace parameters. Certificate # SCS-IAQ-09975

Nucraft provides FSC 100%; FSC Mix certified wood as an option for their products. The customer can specify the use FSC while ordering Summit Lecterns. 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 Nucraft | Summit Lectern™. January 31, 2025.
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. SCS Type III Environmental Declaration Program: Program Operator Manual. V12.0 December 2023. SCS Global Services.
6. BIFMA PCR for Tables: UNCPC 3812. NSF International. Version 1. Valid through January 31, 2026.

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: Sahil Akolawala
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