



# Aura, Nexus, SuperCluster, Baffles, Legno, Loha and Stratus Acoustical Panels



**Sky Acoustics Inc.**

## ENVIRONMENTAL PRODUCT DECLARATION

ISO 14025:2006 and ISO 21930:2017

SkyAcoustics Inc. is pleased to present this Environmental Product Declaration (EPD) for Aura, Nexus Supercluster, Baffles, Legno, Loha and Stratus Acoustical Panels. This EPD was developed in compliance with ISO 14025 and ISO 21930 and has been verified by Lindita Bushi, Ph.D., Athena Sustainable Material Institute.

The LCA and the EPD were prepared by Vertima Inc. The EPD includes cradle-to-gate life cycle assessment (LCA) results.

For more information about Sky Acoustics, visit [www.sky-acoustics.com](http://www.sky-acoustics.com)

For any explanatory material regarding this EPD, please contact the program operator.

# 1. GENERAL INFORMATION

PCR GENERAL INFORMATION			
<b>Reference PCR</b>	Part B: Non-Metal Ceiling and Interior Wall Panel EPD Requirements UL Environment April 13, 2021 to April 13, 2026		
<b>The PCR review was conducted by:</b>	<i>Dr. Lindita Bushi</i> Senior Research Associate ATHENA Sustainable Materials Institute lindita.bushi@athenasmi.org	<i>Dr. Tom Gloria</i> Industrial Ecology Consultants t.gloria@industrial-ecology.com	<i>Olivia Palmer</i> Simpson Gumpertz & Heger ohpalmer@sgh.com
EPD GENERAL INFORMATION			
<b>Program Operator</b>	ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428 <a href="http://www.astm.org">www.astm.org</a>		
<b>Declared Product</b>	<b>Aura Panels</b> <b>Nexus Acoustical Panels</b> <b>Nexus High Impact Panels</b> <b>Nexus High Impact Ultimate Panels</b> <b>Nexus Nova Panels</b>		
	<b>Supercluster Panels</b> <b>Baffle Panels</b> <b>Legno Panels</b> <b>Loha Panels</b> <b>Stratus Panels</b>		
<b>EPD Registration Number</b> 344	<b>EPD Date of Issue</b> September 27, 2022	<b>EPD Period of Validity</b> September 27, 2022 - September 26, 2027	
<b>EPD Recipient Organization</b>	Sky-Acoustics Inc. 55 Bradwick Drive Concord (Ontario) L4K 1K5 Canada <a href="http://www.sky-acoustics.com">www.sky-acoustics.com</a>		
<b>EPD Type/Scope and Declared Unit</b> Product-specific cradle-to-gate EPD with declared unit of 0.093 m <sup>2</sup> (1 ft <sup>2</sup> ) of acoustical panel		<b>Year of Reported Manufacturer Primary Data</b> 2021	
<b>Geographical Scope</b> North America	<b>LCA Software</b> OpenLCA v1.10.3	<b>LCI Databases</b> US LCI and ecoinvent 3.8	<b>LCIA Methodology</b> TRACI 2.1
This LCA and EPD were prepared by:		Chantal Lavigne, M.A.Sc. Vertima Inc. <a href="http://www.vertima.ca">www.vertima.ca</a>	
This EPD and LCA were independently verified in accordance with ISO 14025:2006, ISO 14040:2006 and ISO 14044:2006, as well as the UL Environment PCR "Part B: Non-Metal Ceiling and Interior Wall Panel EPD Requirements, second edition, which is based on ISO 21930:2017. The UL Environment "Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report, v3.2" serves as the core PCR.		 Lindita Bushi, Ph.D. Athena Sustainable Materials Institute	
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## LIMITATIONS

Environmental declarations from different programs (ISO 14025) may not be comparable.[1]

Full conformance with the PCR for North American Non-Metal Ceiling and Wall System Products [2] allows EPD comparability only when all stages of the product life cycle have been considered. However, variations and deviations are possible. For example, different LCA software and background LCI datasets may lead to differences in results upstream or downstream of the life cycle stages declared.

Comparison of the environmental performance of non-metal ceiling and wall system products using the EPD information taken from this study is not permitted since the product's use and impacts at the building level are excluded from the study.



## 2. PRODUCT SYSTEM DESCRIPTION

### 2.1. DESCRIPTION OF THE ORGANIZATION

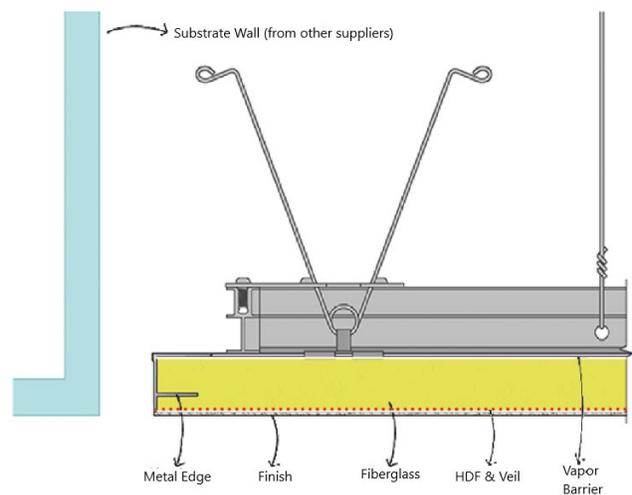
Sky Acoustics Inc., whose manufacturing facility is based in Concord (Ontario), is a premier manufacturer of architectural acoustical panel systems. From ceiling to wall panels offered in a range of materials and coatings, a full suite of products is available for all types of projects.

### 2.2. PRODUCT DESCRIPTION

All of Sky Acoustics' acoustical ceiling and wall panels are made with a fiberglass core panel. Panels are available with different face finishes, including fabric, veneer, a perforated aluminum sheet or coated with a smooth monolithic fine-texture paint finish, available in standard Aura White (90% light reflectance) or any custom color match.

Aura, Legno and Loha<sup>1</sup> panels are fiberglass core panels framed with an aluminum extrusion. Aura ceiling panels have a paint-coated finish, while Legno and Loha wall and ceiling panels are respectively finished with wood veneer and a perforated aluminum sheet.

Nexus<sup>2</sup> wall panels are fabric-finished panels available in five different impact levels. Only four impact levels are considered in this EPD: Nexus Acoustical, Nexus High Impact, Nexus High Impact Ultimate and Nexus Nova. Nexus panels are typically used for wall applications and have resin-hardened edges. Nexus Acoustical panels are recommended for areas where panels are not likely to receive abuse or impact, while Nexus High Impact, Nexus High Impact Ultimate and Nexus Nova panels have an additional layer of protection for use in areas where low to high impact resistance is needed. These panels respectively have an added layer of high-density fiberglass facer, high-density scrim and perforated copolymer.



Representations of the Aura panel with a custom Aptus grid system (Aptus grid system excluded from the EPD).

<sup>1</sup> Aura panels are classified under the United Nations Standard Products and Services Code (UNSPSC) 30161602 and 30161601, and the Construction Specification Institute (CSI) MasterFormat code 09 51 13 and 09 51 23. Legno and Loha panels are classified as Aura panels, but can also be found under the UNSPSC code 30161505 and CSI MasterFormat code 09 84 33.

<sup>2</sup> Nexus panels are classified under the United Nations Standard Products and Services Code (UNSPSC) 30161505, and the Construction Specification Institute (CSI) MasterFormat code 09 84 33.

Stratus<sup>3</sup> panels are traditional lay-in ceiling tiles designed to work with a traditional T-bar ceiling grid. They are finished either with a painted pre-coated fiberglass veil or with a choice of fabrics.

Supercluster<sup>3</sup> ceiling panels are custom-manufactured in a wide variety of shapes and sizes. The fiberglass core panels have resin-hardened edges and are finished with a painted pre-coated fiberglass veil.

Baffles<sup>3</sup> are linear acoustical panel systems that can run vertically or horizontally and be applied to ceilings and/or walls. Baffles are available in three different finish options including micro-perforated wood veneer, fabric and paint-coated.

### 2.3. MATERIAL COMPOSITION

The raw material inputs are presented for 1" panels and for 2" panels in the tables below. For details on material content, please refer to the Health Product Declaration (HPD<sup>®</sup>) available at <http://www.hpd-collaborative.org/hpd-public-repository/>



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<sup>3</sup> Stratus, Supercluster and Baffle panels are classified under the United Nations Standard Products and Services Code (UNSPSC) 30161602 and 30161601, and the Construction Specification Institute (CSI) MasterFormat code 09 51 13 and 09 51 23.

**Material composition of Sky Acoustics' 1" panels per declared product**

Materials/Components	Aura 1" Panels	Nexus and Stratus - Fabric Finish 1" Panels			Stratus - Coated Finish 1" Panels	SuperCluster and Baffles - Veneer or Coated Finish and Legno 1" Panels			Loha 1" Panels
	%	% weighted average	% min	% max	%	% weighted average	% min	% max	%
Fiberglass	44.09%	64.59%	( 53.89% - 71.68% )		78.66%	44.12%	( 37.32% - 49.91% )		33.07%
High-density fiberglass (HDF)	8.82%	3.36%	( 0.00% - 11.31% )		0.00%	14.78%	( 9.04% - 19.96% )		0.00%
Adhesive	18.08%	8.96%	( 5.79% - 12.86% )		8.65%	17.61%	( 11.94% - 21.43% )		5.42%
Resin spot	0.07%	5.17%	( 0.00% - 5.52% )		0.00%	1.15%	( 0.00% - 3.62% )		2.65%
Vapor barrier	0.28%	0.00%	( 0.00% - 0.45% )		0.49%	0.09%	( 0.00% - 0.28% )		0.21%
Metal extrusion	21.17%	0.00%	( 0.00% - 0.00% )		0.00%	9.71%	( 0.00% - 21.69% )		15.87%
Pre-coated veil	3.97%	2.79%	( 0.00% - 3.23% )		3.54%	2.44%	( 0.00% - 4.18% )		0.00%
Resin edge	0.00%	3.88%	( 3.23% - 4.30% )		4.72%	4.61%	( 0.00% - 9.95% )		0.00%
High-density scrim	0.00%	0.00%	( 0.00% - 7.88% )		0.00%	0.00%	( 0.00% - 0.00% )		0.00%
Perforated co-polymer	0.00%	1.21%	( 0.00% - 24.36% )		0.00%	0.00%	( 0.00% - 0.00% )		0.00%
Plastic spline	0.00%	0.00%	( 0.00% - 0.00% )		0.00%	0.00%	( 0.00% - 0.00% )		0.00%
Adhesive #2	0.00%	0.37%	( 0.34% - 0.45% )		0.00%	0.18%	( 0.00% - 0.60% )		0.45%
Face finish - paint	2.20%	0.00%	( 0.00% - 0.00% )		3.93%	2.98%	( 0.00% - 4.99% )		0.00%
Face finish - fabric	0.00%	7.75%	( 6.47% - 8.60% )		0.00%	0.00%	( 0.00% - 0.00% )		0.00%
Face finish - wood veneer	0.00%	0.00%	( 0.00% - 0.00% )		0.00%	1.15%	( 0.00% - 14.93% )		0.00%
Face finish - metal	0.00%	0.00%	( 0.00% - 0.00% )		0.00%	0.00%	( 0.00% - 0.00% )		41.34%
Clear lacquer	0.00%	0.00%	( 0.00% - 0.00% )		0.00%	0.57%	( 0.00% - 2.61% )		0.00%
Hardware (steel)	1.32%	1.94%	( 0.00% - 2.07% )		0.00%	0.62%	( 0.00% - 1.36% )		0.99%
<b>TOTAL</b>	<b>100.00%</b>	<b>100.00%</b>			<b>100.00%</b>	<b>100.00%</b>			<b>100.00%</b>



**Material composition of Sky Acoustics' 2" panels per declared product**

Materials/Components	Aura 2" Panels	Nexus and Stratus - Fabric Finish 2" Panels			Baffles - Fabric Finish 2" Panels	SuperCluster and Baffles - Veneer or Coated Finish 2" Panels		
	%	% weighted average	% min	% max	%	% weighted average	% min	% max
Fiberglass	57.72%	74.33%	( 66.62% - 79.96% )		42.90%	47.53%	( 46.95% - 64.28% )	
High-density fiberglass (HDF)	6.27%	3.04%	( 0.00% - 7.48% )		9.33%	10.33%	( 10.21% - 13.97% )	
Adhesive	12.86%	6.17%	( 3.89% - 8.50% )		18.65%	15.25%	( 10.21% - 16.54% )	
Resin spot	0.05%	3.23%	( 0.00% - 3.40% )		0.00%	0.00%	( 0.00% - 0.00% )	
Vapor barrier	0.20%	0.00%	( 0.00% - 0.27% )		0.00%	0.00%	( 0.00% - 0.00% )	
Metal extrusion	17.57%	0.00%	( 0.00% - 0.00% )		9.33%	10.25%	( 0.00% - 10.34% )	
Pre-coated veil	2.82%	1.82%	( 0.00% - 1.96% )		1.87%	1.66%	( 0.00% - 3.14% )	
Resin edge	0.00%	5.05%	( 4.53% - 5.43% )		8.86%	9.75%	( 2.10% - 9.82% )	
High-density scrim	0.00%	0.00%	( 0.00% - 4.94% )		0.00%	0.00%	( 0.00% - 0.00% )	
Perforated co-polymer	0.00%	0.00%	( 0.00% - 16.36% )		0.00%	0.00%	( 0.00% - 0.00% )	
Plastic spline	0.00%	0.00%	( 0.00% - 0.00% )		2.80%	0.00%	( 0.00% - 0.00% )	
Adhesive #2	0.00%	0.30%	( 0.27% - 0.33% )		0.37%	0.08%	( 0.00% - 0.41% )	
Face finish - paint	1.57%	0.00%	( 0.00% - 0.00% )		0.00%	2.41%	( 0.00% - 3.93% )	
Face finish - fabric	0.00%	4.85%	( 4.34% - 5.21% )		5.60%	0.00%	( 0.00% - 0.00% )	
Face finish - wood veneer	0.00%	0.00%	( 0.00% - 0.00% )		0.00%	2.04%	( 0.00% - 10.21% )	
Face finish - metal	0.00%	0.00%	( 0.00% - 0.00% )		0.00%	0.00%	( 0.00% - 0.00% )	
Clear lacquer	0.00%	0.00%	( 0.00% - 0.00% )		0.00%	0.36%	( 0.00% - 1.79% )	
Hardware (steel)	0.94%	1.21%	( 0.00% - 1.27% )		0.31%	0.34%	( 0.00% - 0.34% )	
<b>TOTAL</b>	<b>100.00%</b>	<b>100.00%</b>			<b>100.00%</b>	<b>100.00%</b>		



## 2.4. PRODUCT APPLICATION

Sky Acoustics' acoustical panels are used as ceiling or wall panels in commercial applications and occasionally in residential applications. More precisely, Aura and Stratus panels are designed for ceiling applications, while Nexus panels are designed to be used as wall panels. Loha panels are used as wall or ceiling panels. Baffles and Supercluster panels, on the other hand, are designed to be used as baffles and/or clouds. Finally, Legno panels can be used in all types of applications.

## 2.5. TECHNICAL DATA AND PLACING ON THE MARKET

Sky Acoustics' panels have been tested according to different test methods listed below.

Test Method	Aura	Nexus	Stratus	SuperCluster	Baffles	Legno	Loha
Noise Reduction Coefficient (ASTM C423)	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Luminous Reflectance (ASTM E1477-98a) Panels with Aura white paint only	90%	n/a	90%	90%	90%	n/a	n/a
Flame Spread Rating (CAN/ULC-S102:2018)	25	25	25	25	25	Test underway	0
Smoke Development Classification (CAN/ULC-S102:2018)	40	40	40	40	40	Test underway	30
Fire Rating (ASTM E84)	Class A	Class A	Class A	Class A	Class A	Class A	Class A

## 2.6. PROPERTIES OF THE DECLARED PRODUCT AS DELIVERED

Panels can be customized to any size, but are available in a maximum size of 60" x 120" (1524 mm x 3048 mm) for Aura panels, 48" x 96" (1219 mm x 2438 mm) for Nexus Acoustical, Nexus High Impact, Nexus High Impact Ultimate, Nexus Nova, Supercluster, Legno and Loha panels, 48" x 60" (1219 mm x 1524 mm) for Stratus panels and 24" x 96" (609 mm x 2438 mm) for Baffles. Panels are available either in 1" or 2" thicknesses, except for Legno and Loha panels which are only available in 1" thick panels. Actual panel thickness for 1" and 2" panels vary from 1" to 1-1/8" and from 2" to 2-1/8", respectively.

Various mounting systems are available depending on the panel type and installation requirements.

More details are available at [www.sky-acoustics.com](http://www.sky-acoustics.com).

## 2.7. MANUFACTURING

To prepare the acoustical ceiling and wall panels, Sky Acoustics first laminates the supplied fiberglass to the appropriate material, before cutting the panels to size. Additional panel material is installed prior to framing the panels with structural edges. Then, the panels are finished and the face finish is applied whether it is paint, fabric, veneer or a metal cover. Finally, the mounting hardware is installed and the panels are packaged to be ready for shipment.

## 2.8. PRODUCT INSTALLATION

Products should be processed and installed according to industry standards and according to applicable building codes.

## 2.9. PACKAGING

Panels are packaged in wooden crates fabricated from 1"x2" pine boards and 1/8" MDF-lined with 1/2" Styrofoam. Each panel is wrapped in a thin polystyrene foam and placed in the crate face-to-face and back-to-back. Any gaps between the panels and the crate are supported by Styrofoam to eliminate any movement. The crate is assembled using wood screws and secured using 1/2" metal strapping.

## 2.10. REFERENCE SERVICE LIFE AND CONDITION OF USE

For this EPD, the system boundaries encompass a cradle-to-gate scope. Environmental impacts of products in the use phase are excluded from this declaration, per PCR Part B: Non-Metal Ceiling and Interior Wall Panel EPD Requirements.

## 2.11. RE-USE PHASE

The product may be re-used if still in good condition.

## 2.12. DISPOSAL

At their end-of-life, panels are sent to landfill.



### 3. LCA CALCULATION RULES

#### 3.1. DECLARED UNIT

The selected declared unit (DU) for this study is **0.093 m<sup>2</sup> (1 ft<sup>2</sup>)** of acoustical wall and/or ceiling panels.

##### Declared Unit of studied products, panel thickness, surface weight and density

	Unit	Aura 1" Panels	Nexus and Stratus - Fabric Finish 1" Panels*	Stratus - Coated Finish 1" Panels	SuperCluster and Baffles - Veneer or Coated Finish and Legno 1" Panels*	Loha 1" Panels
Declared unit (DU)	m <sup>2</sup>	0.093	0.093	0.093	0.093	0.093
	(ft <sup>2</sup> )	(1)	(1)	(1)	(1)	(1)
Declared thickness	cm	2.70	2.59	2.70	2.65	2.54
	(inches)	1 1/16	1 1/64	1 1/16	1 3/64	1
Surface weight per declared unit	kg/m <sup>2</sup>	6.10	4.17	3.42	6.10	8.14
	kg/0.093 m <sup>2</sup>	0.568	0.387	0.318	0.567	0.757
	(lbs/ft <sup>2</sup> )	1.250	0.853	0.701	1.249	1.667
Density per declared unit	kg/m <sup>3</sup>	226	161	127	230	320
	(lbs/ft <sup>3</sup> )	14.12	10.03	7.91	14.35	20.00

\*: weighted average

##### Declared Unit of studied products, panel thickness, surface weight and density (cont'd)

	Unit	Aura 2" Panels	Nexus and Stratus - Fabric Finish 2" Panels*	Baffles - Fabric Finish 2" Panels	SuperCluster and Baffles - Veneer or Coated Finish 2" Panels*
Declared unit (DU)	m <sup>2</sup>	0.093	0.093	0.093	0.093
	(ft <sup>2</sup> )	(1)	(1)	(1)	(1)
Declared thickness	cm	5.24	5.14	5.08	5.08
	(inches)	2 1/16	2 1/64	2 1/16	2
Surface weight per declared unit	kg/m <sup>2</sup>	8.58	6.66	11.54	10.42
	kg/0.093 m <sup>2</sup>	0.798	0.620	1.073	0.969
	(lbs/ft <sup>2</sup> )	1.757	1.364	2.364	2.133
Density per declared unit	kg/m <sup>3</sup>	164	130	227	205
	(lbs/ft <sup>3</sup> )	10.22	8.09	14.18	12.79

\*: weighted average

### 3.2. PRODUCTION AVERAGE

In this EPD, some products were grouped as they were similar in their composition and/or their impact results. This was done to protect the confidentiality of the product’s detail composition even though the environmental impact indicators resulted, in some instances, in differences greater than ±10%.

The weighted average profile of the products is calculated based on Sky Acoustics’ 2021 total panel area production. There are four weighted average product groups:

- 1) Nexus Acoustical, Nexus High Impact, Nexus High Impact Ultimate, Nexus Nova and Stratus - Fabric Finish 1” panels
- 2) SuperCluster, Baffles – Coated Finish, Baffles – Wood Veneer Finish and Legno 1” panels
- 3) Nexus Acoustical, Nexus High Impact, Nexus High Impact Ultimate, Nexus Nova and Stratus - Fabric Finish 2” panels
- 4) SuperCluster, Baffles – Coated Finish, Baffles – Wood Veneer Finish and Legno 2” panels

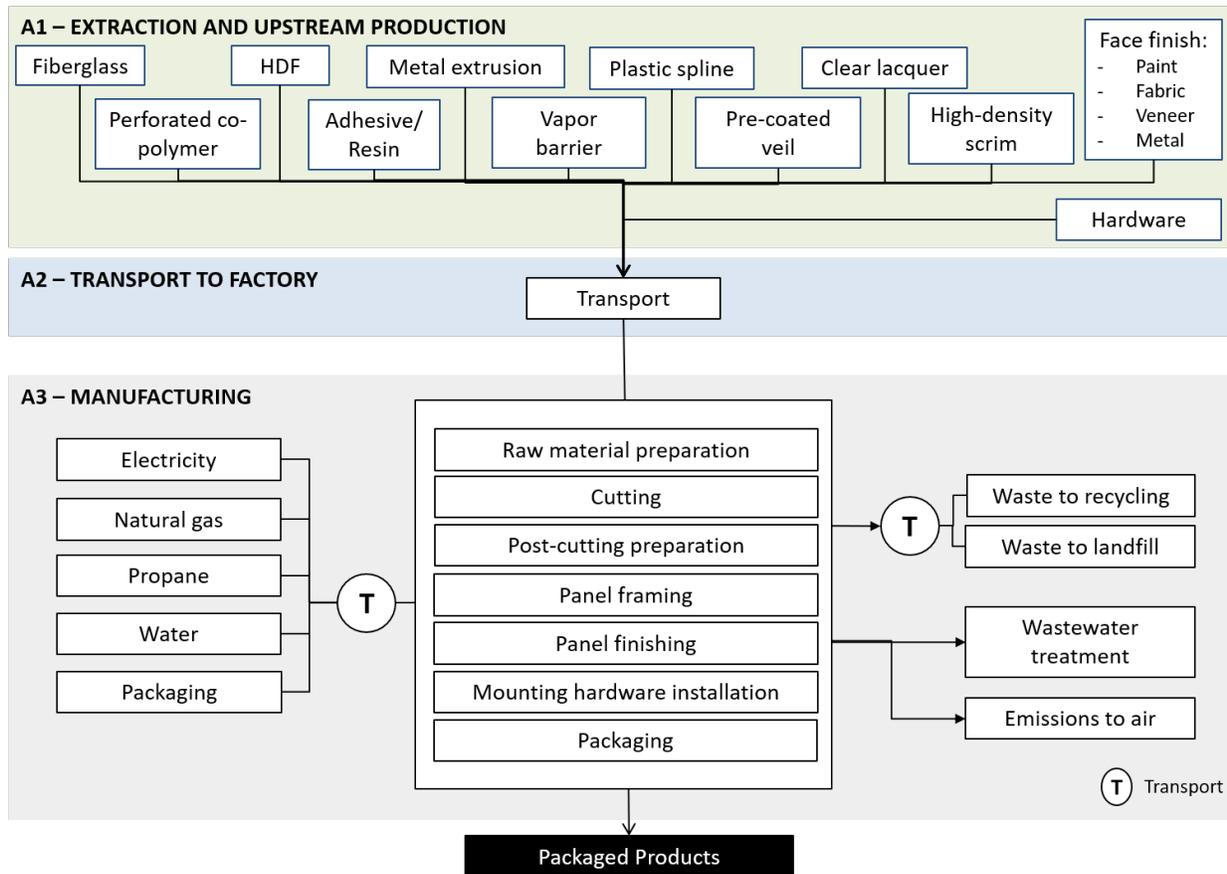
### 3.3. SYSTEM BOUNDARIES

The system boundaries are **cradle-to-gate**, i.e., only cover the production life cycle stage as illustrated in **Table 1**. Within this life cycle stage, three (3) modules are considered, namely A-1) Extraction and Upstream Production, A-2) Transport to Factory and A-3) Manufacturing. Construction (A-4; A-5), Use (B-1 to B-7) and End-of-life (C-1 to C-4) stages are not included in this EPD. Figure 1 presents the process flow diagram for Sky Acoustics’ acoustical panels. Neither green power nor CO<sub>2</sub> credits are used in the framework of this project.

**Table 1: Description of the system boundary life cycle stages and related information modules**

PRODUCTION STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END-OF-LIFE STAGE			
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
Extraction and Upstream Production	Transport to Factory	Manufacturing	Transport to Site	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction / Demolition	Transport to Waste Processing or disposal	Waste Processing	Disposal of Waste
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Key: X = included; MND = module not declared (excluded)



**Figure 1: System Boundaries of Cradle-to-Gate LCA of Sky Acoustics' Acoustical Ceiling and Wall Panels.**

**Extraction and Upstream Production:** This module includes the extraction and transformation of raw materials needed to produce the acoustical ceiling and wall panels.

**Transport to Factory:** This module includes the transportation of raw materials from Sky Acoustics' suppliers to their facility located in Concord (Ontario).

**Manufacturing:** This stage includes energy (electricity, propane, natural gas) consumption for manufacturing processes and production waste, which is either recycled or sent to landfill. Emissions to air from adhesive application (VOC) have also been considered. There is no water consumption during the production process.

Finally, packaging materials, to make products ready for shipment, as well as their transport to Sky Acoustics' manufacturing plant, are covered by this stage.

### 3.4. CUT-OFF CRITERIA

**No known flows are deliberately excluded from this study.**

For this study, no data on the construction, maintenance or dismantling of the capital assets, daily transport of the employees, office work, business trips and other activities from Sky Acoustics' employees was included in the model. The model only takes into account the processes associated with infrastructure that are already included in the *ecoinvent* unit processes.

### 3.5. ALLOCATION

Data was provided for the whole manufacturing plant; thus, **mass allocation** was used for energy input, water flows, waste flows and packaging.

Waste processing of the material flows undergoing recycling processes are included up to the system boundary of the end-of-waste state.[5] In other words, a **cut-off approach** was used as further processing of the recycled material is part of raw material preparation of another product system (**open-loop recycling**).

### 3.6. DATA SOURCES AND QUALITY REQUIREMENTS

Data Quality Parameter	Data Quality Discussion
Source of manufacturing data	Manufacturing data was collected from Sky Acoustics’ manufacturing facility located in Concord (Ontario). This data included total annual mass and area of products under study: raw materials entering the production of the products under study, losses of materials, transport distance of materials, energy consumption, water consumption, waste treatment, and packaging for the whole manufacturing facility.
Source of secondary data	Background data were taken from published EPDs, the US LCI database , which is specific to a North American context, or the ecoinvent 3.8 “cut-off” database.[6][7] Datasets or EPDs were selected based on their representativeness of the products’ components. When appropriate for the database dataset, the grid mix was changed for the grid mix of the province or country where production takes places. Otherwise, ecoinvent data representative of the global market or “rest-of-the-world” were selected as proxies.
Geographical representativeness	The manufacturing facility is based in the province of Ontario; hence electricity consumption is based on the consumption ratio of the Ontario grid mix. Geographical correlation of the material supply and the selected datasets are largely representative of the same area. When this was not possible, datasets representing a larger geographical area were taken.
Temporal representativeness	Primary data represents the 2021 production year. Life cycle inventory datasets selected from published EPDs were published within the last ten years, although this is not always the case for ecoinvent and US LCI datasets. Nevertheless, ecoinvent and US LCI remain reference LCI databases.
Technological representativeness	Primary data, obtained from the manufacturer, is representative of the current technologies and materials used by this company.
Completeness	All relevant process steps were considered and modelled to satisfy the goal and scope. No known flows were cut off.

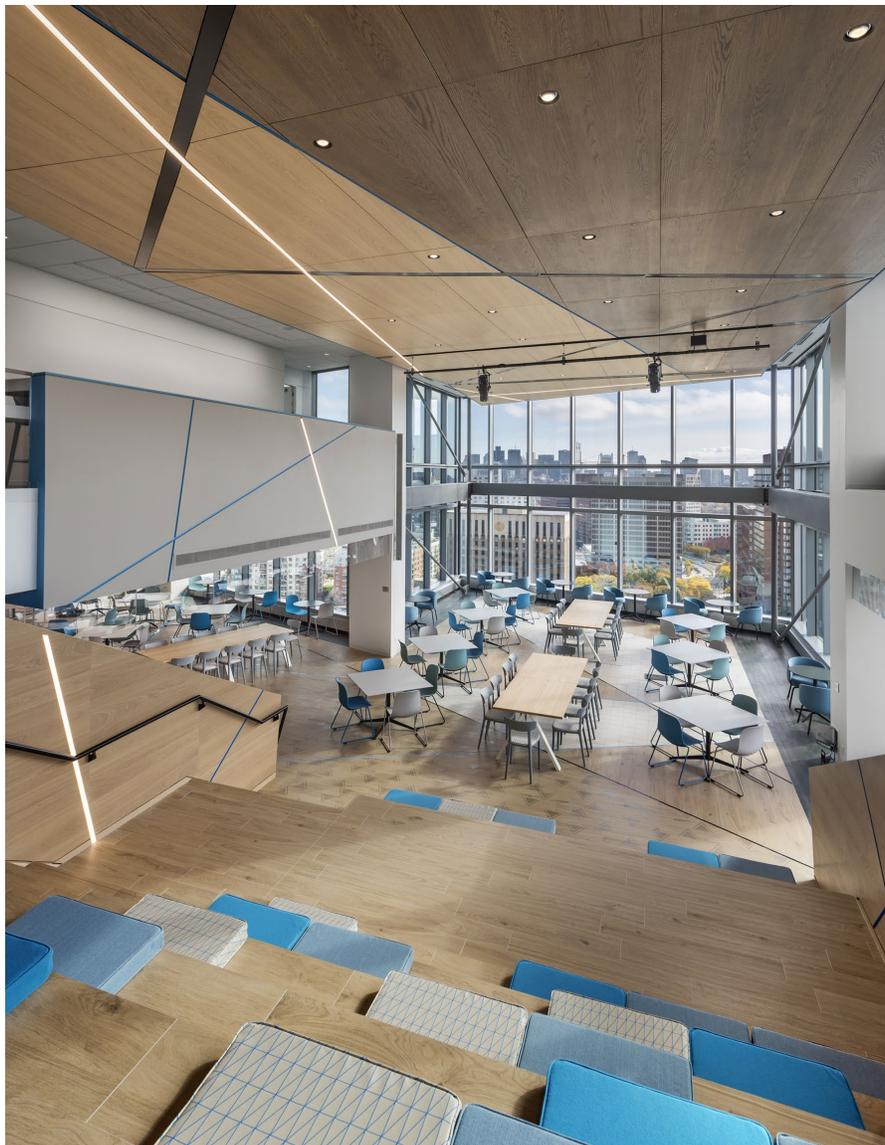
## 4. LIFE CYCLE ASSESSMENT RESULTS

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### 4.1. RESULTS TABLES

It should be noted that Life Cycle Impact Assessment (LCIA) results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

The LCIA results for **0.093 m<sup>2</sup> (1 ft<sup>2</sup>) of acoustical wall and/or ceiling panels** using TRACI, as well as primary energy consumption, consumption of renewable and non-renewable materials, water consumption, and waste generation and presented in the tables below. The six TRACI impact categories are globally deemed mature enough to be included in Type III environmental declarations. Other categories are being developed and defined and LCA should continue making advances in their development. However, EPD users shall not use additional measures for comparative purposes.



Environmental indicator		Unit
<b>TRACI 2.1</b>		
AP	Acidification potential	kg SO <sub>2</sub> eq
EP	Eutrophication potential	kg N eq
GWP-AR4	Global warming potential based on IPCC 2007 (AR4)	kg CO <sub>2</sub> eq
GWP-AR5	Global warming potential based on IPCC 2013 (AR5)	kg CO <sub>2</sub> eq
ODP	Ozone depletion potential	kg CFC-11 eq
SFP	Smog formation potential	kg O <sub>3</sub> eq
ADP-f	Abiotic Resource Depletion Potential of Non-renewable (fossil) energy resources	MJ Surplus
<b>Resource use</b>		
RPR <sub>E</sub>	Renewable primary resources used as energy carrier (fuel)	MJ, LHV
RPR <sub>M</sub>	Renewable primary resources with energy content used as material	MJ, LHV
RPR <sub>T</sub>	Total renewable primary resources	MJ, LHV
NRPR <sub>E</sub>	Non-renewable primary resources used as an energy carrier (fuel)	MJ, LHV
NRPR <sub>M</sub>	Non-renewable primary resources with energy content used as material	MJ, LHV
NRPR <sub>T</sub>	Total non-renewable primary resources	MJ, LHV
SM	Secondary materials	MJ, LHV
RSF	Renewable secondary fuels	MJ, LHV
NRSF	Non-renewable secondary fuels	MJ, LHV
RE	Recovered energy	MJ, LHV
FW	Use of net fresh water resources	m <sup>3</sup>
<b>Output flows and waste categories</b>		
HWD	Hazardous waste disposed	kg
NHWD	Non-hazardous waste disposed	kg
HLRW	High-level radioactive waste, conditioned, to final repository	m <sup>3</sup>
ILLRW	Intermediate- and low-level radioactive waste, conditioned, to final repository	m <sup>3</sup>
CRU	Components for re-use	kg
MR	Materials for recycling	kg
MER	Materials for energy recovery	kg
EE	Recovered energy exported from the product system	MJ, LHV

**LCIA results for 1 ft<sup>2</sup> of 1” acoustical panels (A1-A3)**

Environmental indicator	Unit	Aura 1” Panels	Nexus and Stratus Fabric Finish 1” Panels	Loha Panels	Stratus Coated Finish 1” Panels	Supercluster, Baffles Coated Finish, Baffles Veneer Finish and Legno 1” Panels
		A1-A3 (per ft <sup>2</sup> )	A1-A3 (per ft <sup>2</sup> )	A1-A3 (per ft <sup>2</sup> )	A1-A3 (per ft <sup>2</sup> )	A1-A3 (per ft <sup>2</sup> )
<b>TRACI 2.1</b>						
AP	kg SO <sub>2</sub> eq	1.70E-02	1.07E-02	3.16E-02	8.37E-03	1.62E-02
EP	kg N eq	1.55E-03	1.56E-03	1.80E-03	8.19E-04	1.58E-03
GWP-AR4 <sup>(1)(3)</sup>	kg CO <sub>2</sub> eq	3.44E+00	2.40E+00	6.30E+00	1.73E+00	3.38E+00
GWP-AR5 <sup>(2)(3)</sup>	kg CO <sub>2</sub> eq	3.49E+00	2.43E+00	6.35E+00	1.76E+00	3.42E+00
ODP	kg CFC-11 eq	2.52E-08	2.84E-08	3.55E-08	1.33E-08	2.82E-08
SFP	kg O <sub>3</sub> eq	1.82E-01	1.30E-01	3.38E-01	8.70E-02	1.86E-01
ADP fossil fuels	MJ Surplus	5.80E+00	5.08E+00	9.15E+00	3.15E+00	6.07E+00
<b>Resource use</b>						
RPR <sub>E</sub> <sup>(1)</sup>	MJ, LHV	8.41E+00	3.38E+00	2.36E+01	2.69E+00	6.90E+00
RPR <sub>M</sub> <sup>(2)</sup>	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.98E-01
RPR <sub>T</sub>	MJ, LHV	8.41E+00	3.38E+00	2.36E+01	2.69E+00	7.20E+00
NRPR <sub>E</sub> <sup>(3)</sup>	MJ, LHV	6.06E+01	4.49E+01	9.65E+01	3.28E+01	6.78E+01
NRPR <sub>M</sub> <sup>(4)</sup>	MJ, LHV	1.37E+00	2.97E+00	9.24E-01	6.94E-01	2.12E+00
NRPR <sub>T</sub>	MJ, LHV	6.20E+01	4.79E+01	9.75E+01	3.35E+01	7.00E+01
SM	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW <sup>(5)</sup>	m <sup>3</sup>	2.68E-02	1.91E-02	3.00E-02	1.65E-02	5.53E-02
<b>Output flows and waste categories</b>						
HWD <sup>(1)</sup>	kg	2.81E-03	3.15E-03	3.07E-03	1.75E-03	3.41E-03
NHWD <sup>(2)</sup>	kg	8.34E-01	1.21E+00	1.53E+00	3.00E-01	6.71E-01
HLRW <sup>(3)</sup>	m <sup>3</sup>	2.43E-07	3.36E-07	3.33E-07	1.21E-07	3.73E-07
ILLRW <sup>(4)</sup>	m <sup>3</sup>	3.88E-08	2.90E-08	4.97E-08	2.26E-08	3.99E-08
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR <sup>(5)</sup>	kg	4.79E-03	2.30E-03	0.00E+00	2.40E-03	2.95E-03
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

**LCIA results for 1 ft<sup>2</sup> of 2" acoustical panels (A1-A3)**

Environmental indicator	Unit	Aura 2" Panels	Nexus and Stratus Fabric Finish 2" Panels	Baffles Fabric Finish 2" Panels	Supercluster, Baffles Coated Finish and Baffles Veneer Finish 2" Panels
		A1-A3 (per ft <sup>2</sup> )	A1-A3 (per ft <sup>2</sup> )	A1-A3 (per ft <sup>2</sup> )	A1-A3 (per ft <sup>2</sup> )
<b>TRACI 2.1</b>					
AP	kg SO <sub>2</sub> eq	2.37E-02	1.70E-02	2.84E-02	2.59E-02
EP	kg N eq	2.05E-03	2.10E-03	3.39E-03	2.41E-03
GWP-AR4 <sup>(1)(3)</sup>	kg CO <sub>2</sub> eq	4.85E+00	3.74E+00	6.14E+00	5.47E+00
GWP-AR5 <sup>(2)(3)</sup>	kg CO <sub>2</sub> eq	4.91E+00	3.79E+00	6.23E+00	5.54E+00
ODP	kg CFC-11 eq	3.16E-08	3.67E-08	1.51E-07	3.48E-08
SFP	kg O <sub>3</sub> eq	2.52E-01	1.98E-01	3.55E-01	2.94E-01
ADP fossil fuels	MJ Surplus	8.07E+00	7.39E+00	1.23E+01	9.82E+00
<b>Resource use</b>					
RPR <sub>E</sub> <sup>(1)</sup>	MJ, LHV	1.10E+01	5.40E+00	1.19E+01	1.03E+01
RPR <sub>M</sub> <sup>(2)</sup>	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	8.20E-01
RPR <sub>T</sub>	MJ, LHV	1.10E+01	5.40E+00	1.19E+01	1.11E+01
NRPR <sub>E</sub> <sup>(3)</sup>	MJ, LHV	8.56E+01	6.96E+01	1.12E+02	9.97E+01
NRPR <sub>M</sub> <sup>(4)</sup>	MJ, LHV	1.37E+00	3.27E+00	9.65E+00	3.87E+00
NRPR <sub>T</sub>	MJ, LHV	8.69E+01	7.29E+01	1.22E+02	1.04E+02
SM	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW <sup>(5)</sup>	m <sup>3</sup>	3.68E-02	2.95E-02	4.81E-02	1.12E-01
<b>Output flows and waste categories</b>					
HWD <sup>(1)</sup>	kg	3.65E-03	3.94E-03	7.58E-03	5.78E-03
NHWD <sup>(2)</sup>	kg	9.93E-01	1.34E+00	2.79E+00	9.69E-01
HLRW <sup>(3)</sup>	m <sup>3</sup>	2.62E-07	4.09E-07	7.39E-07	6.29E-07
ILLRW <sup>(4)</sup>	m <sup>3</sup>	5.52E-08	4.59E-08	7.74E-08	6.65E-08
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR <sup>(5)</sup>	kg	4.79E-03	2.40E-03	4.26E-03	3.43E-03
MER	kg	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

**Table Notes – TRACI 2.1**

- (1):  $RPRE = RPRT - RPRM$ , where RPRT is equal to the value for renewable energy obtained using the CED LHV methodology.
- (2): TRACI v2.1 indicator updated with IPCC 2013 (AR5) 100 years.
- (3): Biogenic carbon dioxide emissions and removals are not considered, i.e., their characterization factor is 0 kg CO<sub>2</sub> eq./kg CO<sub>2</sub>

**Table Notes – Resource use**

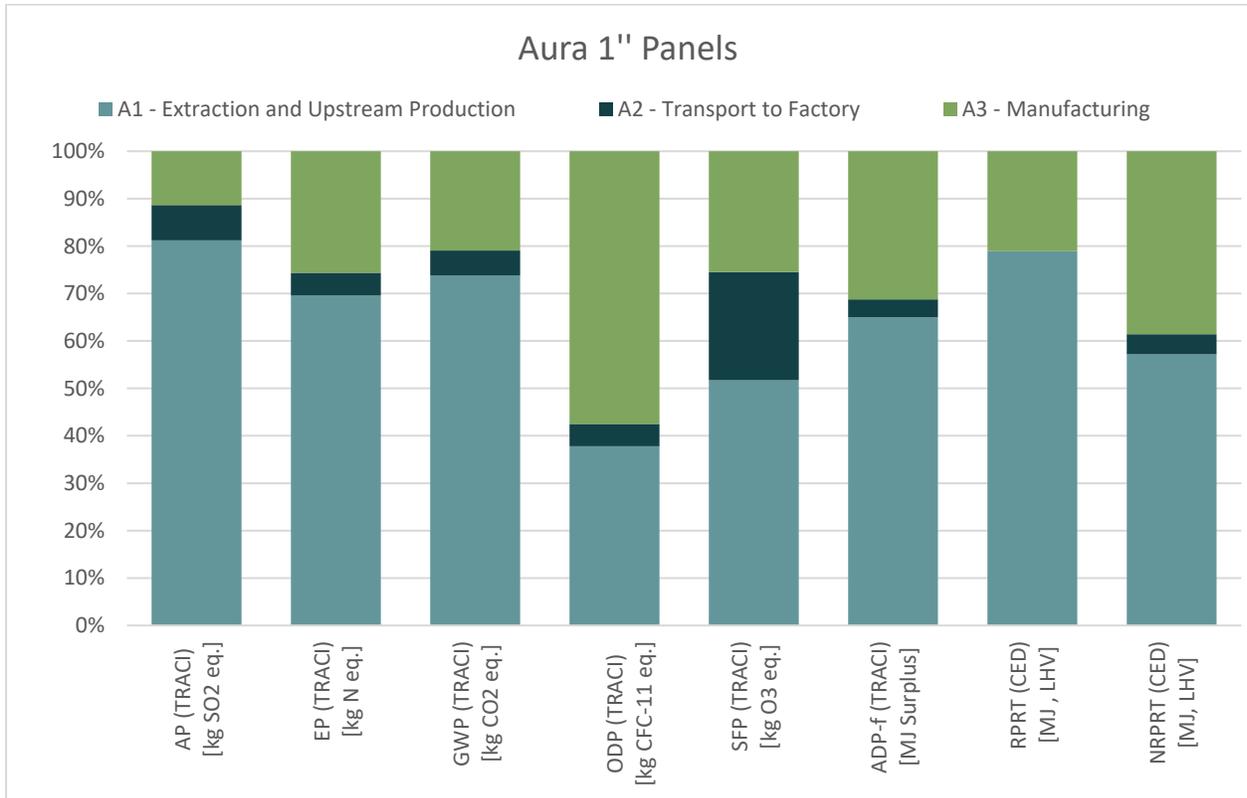
- (1):  $RPRE = RPRT - RPRM$ , where RPRT is equal to the value for renewable energy obtained using the CED LHV methodology.
- (2): Calculated as per ACLCA ISO 21930 Guidance, 6.2 Renewable primary resources with energy content used as a material, RPRM.
- (3):  $NRPRE = NRPRM - NRPRM$ , where NRPRM is equal to the value for non-renewable energy obtained using the CED LHV methodology.
- (4): Calculated as per ACLCA ISO 21930 Guidance, 6.4 Non-renewable primary resources with energy content used as a material, NRPRM.
- (5): FW Represents consumption of water and not use. Sky Acoustics does not consume water in its process.

**Table Notes – Output flows and waste categories**

- (1): Calculated from life cycle inventory results, based on datasets marked as "hazardous" and EPD values.
- (2): Calculated from life cycle inventory results, based on waste that is neither "hazardous" nor "radioactive" and EPD values.
- (3): Calculated from life cycle inventory results, based onecoinvent waste flow "high-level radioactive waste for final repository" and EPD values.
- (4): Calculated from life cycle inventory results, based onecoinvent waste flow "low-level radioactive waste for final repository" and EPD values.
- (5): Calculated based on the amounts leaving the system boundary when they have reached the end-of-waste state.

## 4.2. CONTRIBUTION ANALYSIS

Whichever the panel type or thickness, Extraction and Upstream Production (A1) is the main contributor to all impact categories and energy consumption, except for ozone layer depletion potential where it is either Extraction and Upstream Production (A1) or Manufacturing (A3) which is the main contributor. It should be noted that Transport to Factory (A2) is a large contributor to smog formation potential as its contribution is almost equal to that of Extraction and Upstream Production (A1) in some cases.



Aura 1'' panels contribution of module A1-A3 to the production life cycle stage potential environmental impacts

## 5. ADDITIONAL ENVIRONMENTAL INFORMATION

### 5.1. ENVIRONMENT AND HEALTH DURING MANUFACTURING

Safety is a core value at Sky Acoustics. All appropriate equipment is used and in place at the production facility to make sure employees go home each and every night to their loved ones.

### 5.2. ENVIRONMENT AND HEALTH DURING USE

Sky Acoustics' acoustical panels are not expected to produce any hazard during normal use.

### 5.3. EXTRAORDINARY EFFECTS

No extraordinary effects are to be reported.

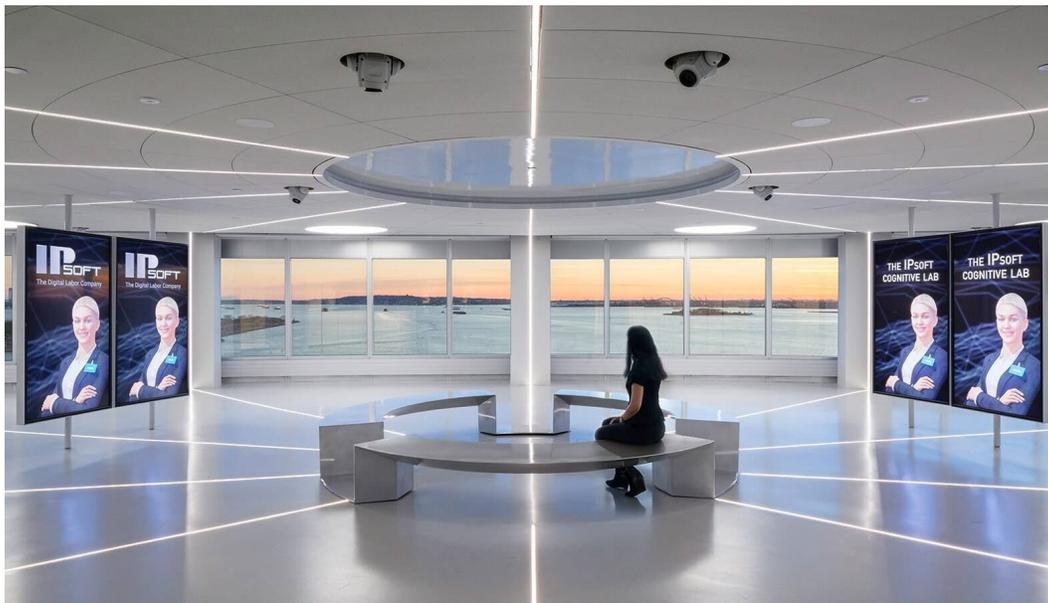
### 5.4. FURTHER INFORMATION

Sky Acoustics Inc. is a family-run business that knows and understands that how we treat our planet today affects our children tomorrow. Their commitment to making their products greener is in every process and supply chain selection, because ultimately, they understand that these products will be used in areas that we and our children live, work, and play.

In addition, Sky Acoustics is part of a third-party verification process with Vertima Inc. where Sky Acoustics' products and its entire supply chain are assessed. At the end of the process, they will be receiving a Validated Eco-Declaration® summarizing verified environmental claims.



Sky Acoustics has also published Health Product Declarations for their products: Aura, Nexus, SuperCluster, Baffles, Legno, Loha and Stratus panels. More details are available on the HPDC public repository: <https://www.hpdcollaborative.org/hpd-public-repository/>.



## 6. REFERENCES

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Sky Acoustics Inc.

55 Bradwick Drive

Concord (Ontario)

L4K 1K5 Canada

[www.sky-acoustics.com](http://www.sky-acoustics.com)

**EPD**

This LCA and EPD were prepared by Vertima Inc.

604 Saint Viateur Street  
Quebec, QC  
(418) 990-2800  
G2L 2K8 CANADA

 **vertima**  
Environmental certification experts

[vertima.ca](http://vertima.ca)