LAURIER
Architectural
A Novatech Group Company Novatech

ENVIRONMENTAL DATA SHEET

SEALED UNITS

Laurier Architectural offers a vast range of energy efficient glass, high quality interlayers and multiple options to customize insulating glazing.

All sealed units are double sealed, made in a professional manner using a sealer robot.

VALIDATED ECO-DECLARATION

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PRODUCT SPECIFICATIONS

References
Sealed units

Final manufacturing location
Laurier-Station, QC G0S 1N0
CANADA

Components
Glass, spacer bar, desiccant, primary seal PIB, secondary seal polysulfide or silicone, coating and argon gas.

ATTRIBUTES

Recycled Content
Pre-consumer: 0% - 9.1%
Post-consumer: 0% - 6.1%

Sourcing of raw materials
Data collection from suppliers has been conducted for 100% of product components.

Certified Wood	-
Rapidly renewable materials	-
Biobased materials	-

ENVIRONMENTAL IMPACTS

Life Cycle Assessment	Octobre 2018
Reference service life	-
Product's carbon footprint	Octobre 2018

Environmental Product Declaration
ISO 14025:2006 — November 2018 to November 2023

INGREDIENTS AND EMISSIONS

Declaration of chemical ingredients	1,000 ppm
Type of declaration	HPD® version 2.1 Health Product Declaration®
Emission test	-
COV	-
Formaldehyde	–
Others	-

TECHNICAL PERFORMANCES

Performance tests
ASTM E 2190

MANUFACTURER'S ENVIRONMENTAL MANAGEMENT

Certification ISO 14001	-
Extended Producer Responsibility (Take Back Program)	-
Corporate Sustainability Report (CSR : GRI, ISO 26000, BNQ 21000 or others	-

CERTIFICATIONS AND CONFORMITIES

ASTM INTERNATIONAL
INSULATING GLASS IGCC CERTIFICATION COUNCIL
IGMA INSULATING GLASS MANUFACTURERS ALLIANCE

Founded in 1950, Laurier Architectural is part of the Novatech group. Over the years, the company has developed an expertise in different glass products from value-added sealed units to spandrels, heat treated glass, laminated glass and decorative glass. As a partner of excellence, we help customers and architects to stand out with a unique and innovative image.

153, Laurier blvd, Laurier-Station, QC G0S 1N0 CANADA
www.laurier.net

MasterFormat®: **08 80 50**
Validated Eco-Declaration:
VED18-1018-03
Original issue date: **03/2013**
Period of validity: **11/2019** to **11/2020**

VERTIMA ® VALIDATED ECO-DECLARATION

ENVIRONMENTAL DATA SHEET
SEALED UNITS

LAURIER Architectural
A Novatech Group Company

Characteristics:

- Double or triple sealed units, double sealed, fabricated with energy efficient glass and argon gas.
- Wide range of energy efficient pyrolitic and soft coat glass.
- Sealed unit may be fabricated with tinted glass or decorative glass.
- Warm edge interlayers available in different widths.

Maximal dimensions: 78" x 135" - 1981mm x 3429mm

ATTRIBUTES

RECYCLED CONTENT

Final product (Polysulfide sealant)	Weight ratio	Pre-consumer	Post-consumer
Sealed units - Interval 1 - 3mm glass 1 (3mm) - glass 2 (3mm)	100%	0% - 8.8%	0% - 5.9%
Sealed units - Interval 1 - 6mm glass 1 (6mm) - glass 2 (6mm)	100%	0% - 8.8%	0% - 5.9%
Sealed units - Interval 2 - 3mm glass 1 (3mm) - glass 2 (3mm)	100%	0% - 8.8%	0% - 5.9%
Sealed units- Interval 2 - 6mm glass 1 (6mm) - glass 2 (6mm)	100%	0% - 8.8%	0% - 5.9%
Final product with recycled content	**Weight ratio**	**Pre-consumer**	**Post-consumer**
Sealed units - Interval 3 - 3mm glass 1 (3mm) -glass 2 (3mm)	100%	0.2% - 9.1%	0.2% - 6.1%
Sealed units - Interval 3 - 6mm glass 1 (6mm) -glass 2 (6mm)	100%	0.2% - 9.0%	0.2% - 6.1%
Component (with recycled content)	**Weight ratio**	**Pre-consumer**	**Post-consumer**
Aluminium spacer bar (Supplier 1)	0.1% - 0.3%	45.0%	47.0%
Glass (Supplier 6)	97.4% - 98.7%	9.0%	6.0%
Final product (Silicone sealant)	**Weight ratio**	**Pre-consumer**	**Post-consumer**
Sealed units - Interval 4 - 3mm glass 1 (3mm) - glass 2 (3mm)	100%	0% - 8.9%	0% - 5.9%
Sealed units - Interval 4 - 6mm glass 1 (6mm) - glass 2 (6mm)	100%	0% - 8.9%	0% - 5.9%
Sealed units - Interval 5 - 3mm glass 1 (3mm) - glass 2 (3mm)	100%	0% - 8.9%	0% - 5.9%
Sealed units - Interval 5 - 6mm glass 1 (6mm) - glass 2 (6mm)	100%	0% - 8.9%	0% - 5.9%

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ATTRIBUTES (CONTINUED)

RECYCLED CONTENT (CONTINUED)

Final product with recycled content	Weight ratio	Pre-consumer	Post-consumer
Sealed units - Interval 6 - 3mm glass 1 (3mm) - glass 2 (3mm)	100%	0.1% - 8.9%	0.1% - 6.0%
Sealed units - Interval 6 - 6mm glass 1 (6mm) - glass 2 (6mm)	100%	0.1% - 9.0%	0.1% - 6.0%

Component (with recycled content)	Weight ratio	Pre-consumer	Post-consumer
Aluminium spacer bar (Supplier 1)	0.1% - 0.3%	45.0%	47.0%
Glass (Supplier 6)	97.4% - 98.7%	9.0%	6.0%

Validated Eco-Declaration – Recycled Content
Methodology: on-site audit, supply chain evaluation, analysis and validation of the recycled content data according to the weight ratio of each of the components used in the manufacturing the final product.
Vertima's procedure: VERT-032008-01, Second Edition.

SOURCING OF RAW MATERIALS

Weight ratio	Final manufacturing location
100%	Laurier-Station, QC G0S 1N0 CANADA

Validated Eco-Declaration – Sourcing of raw materials
Methodology: on-site audit, supply chain evaluation, analysis and validation of the sourcing of raw materials data according to the weight ratio of each of the components used in manufacturing the final product.
Vertima's procedure: VERT-032008–02, Second Edition.

Component	Weight ratio	Location of suppliers	Extraction location	Transport from suppliers
Glass (suppliers 1, 2, 3, 4, 5, 6)	97.4% - 98.7%	Canada (QC), United States (TN, MI, PA), Europe, United Arab Emirates	N/A	Road / Boat
Spacer bar #1	0.1% - 0.3%	United States (OH)	N/A	Road
Spacer bar #2		Switzerland	N/A	Road
Spacer bar #3 (Suppliers 1, 2)		Canada (QC, ON)	N/A	Boat
Desiccant	0.1% - 0.2%	China	N/A	Boat
Primary seal - PIB	0% - 0.01%	Canada (ON)	N/A	Boat
Secondary seal-Polysulfide (Suppliers 1, 2)	1.4% - 1.6%	Canada (ON)	N/A	Road
Secondary seal - Silicone	1.0 % -1.2%	United States (MI)	N/A	Road
Coating #3*	0.7%	United States (MA)	N/A	Road
Coating #4*	0.1%	United States (RI)	N/A	Road
Argon gas	Negligible	Canada (ON)	N/A	N/A

*Optional

The source of extraction and location of raw materials could not be documented.

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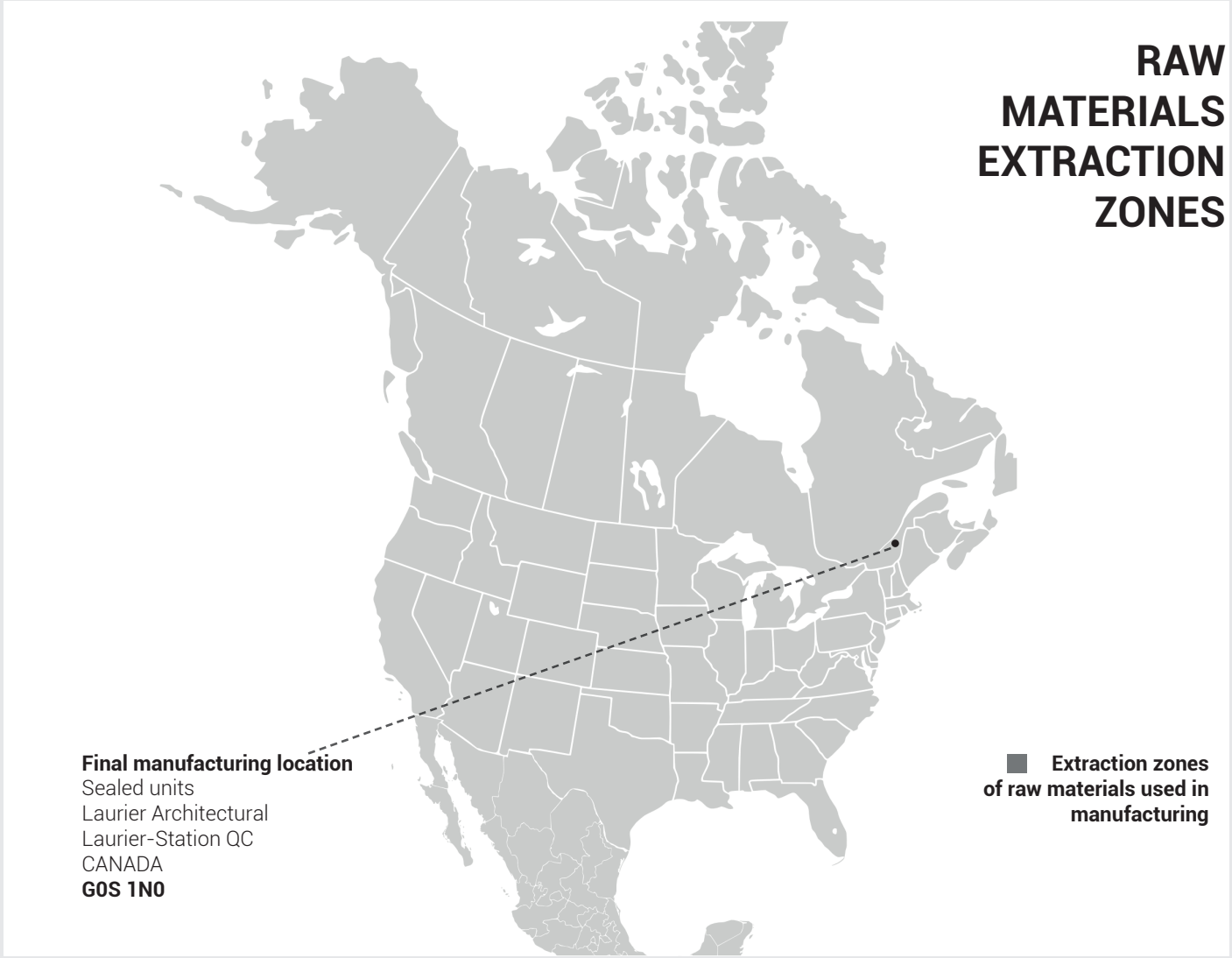
ATTRIBUTES (CONTINUED)

SOURCING OF RAW MATERIALS (CONTINUED)



Data collection from suppliers has been conducted for 100% of Insulating glass units components.

Sources of supply locations are all listed on page 3, however none of the extraction locations could be identified based on product composition.

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ENVIRONMENTAL IMPACTS

ENVIRONMENTAL PRODUCT DECLARATION (EPD)

☑ Product-specific EPD, ISO 14025:2006, Type III

The monolithic glass was the objet of a DEP which was prepared by Vertima. CSA Group is the program operator. The life cycle assessment, verified by a third party Athena Sustainable Materials Institute and on which is based this EPD, has been done by Vertima.

Reference PCR	UL Environment (2021). PCR Guidance for Building-Related Products and Services – Part B: Processed Glass EPD Requirements.

Declared Unit	Scope of the LCA	Reference service life	Period of validity
X m² of Sealed Units	Cradle-to-gate	N/A	November 2018 to November 2023

Table of environmental impacts for 1 m² of monolithic glass

Impact categories	Unit	Results per functional unit
Acidification potential	kg SO_2 eq.	5.39E-01
Eutrophication potential	Kg N eq.	7.07E-02
Global warming potential	kg CO_2 eq.	6.45E+01
Stratospheric ozone layer depletion potential	kg CFC-11 eq.	9.30E-07
Photochemical ozone creation potential	kg O_3 eq.	1.32E+01
Abiotic resource depletion potential - fossil fuels	MJ surplus	1.17E+02
Abiotic resource depletion potential - minerals (per ReCiPe)	kg Fe eq.	1.45E+00
Total consumption primary energy	**Unit**	**Results per functional unit**
Total use of renewable primary energy resources	MJ, LHV	1.79E+02
Total use of non-renewable primary energy resources	MJ, LHV	1.33E+03

Source: EPD report

Type III Environmental Product Declaration developed in accordance with ISO 14025:2006

Validated Eco-Declaration – Environmental Product Declaration (EPD)
Methodology: validation of documents and methodology surrounding the product LCA report and EPD.
Vertima's procedure: VERT-032010-03, Second Edition.

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DECLARATION OF CHEMICAL INGREDIENTS

Type of declaration: Health Product Declaration® (HPD®) version 2.1
Period of validity: August 2018 to August 2021
HPD name: SEALED UNITS
Summary of product contents and results from screening individual chemical substances against HPD Priority Lists[1] and the GreenScreen for Safer Chemicals®[,2].
HPDC repository URL: http://www.hpd-collaborative.org/hpd-public-repository/

The Health Product Declaration® and logo is owned by the Health Product Declaration® Collaborative and is used with permission.

Declaration: ■ Prepared by Vertima inc., third party approved by HPDC
Ingredients inventory threshold: 1,000 ppm
Full disclosure of intentional ingredients: No
Full disclosure of known hazards: Yes

Hazard(s) associated with the product ingredients:

This HPD Standard describes a declaration of product content and direct health hazards associated with exposure to its individual contents. The Declaration is not an assessment of risks associated with actual use of the product. It does not address the potential health impacts of substances used or created during manufacture that do not appear in the final product as residuals, nor substances created during combustion or other degradation processes.

Highest concern GreenScreen® Benchmark: GS List Translator Likely Benchmark 1[3]

■ PBT (Persistent, Bioaccumulative, Toxic)	■ Respiratory	■ Physical hazard
■ Cancer	□ Neurotoxicity	□ Global warming
■ Gene mutation	□ Mammal	□ Ozone depletion
□ Development	□ Land toxicity	■ Multiple
■ Reproductive	■ Aquatic toxicity	□ Unknown
■ Endocrine	■ Skin or eye	

[1]Refer to Annex D of HPD® Open Standard Version 2.1, May 2017: http://www.hpd-collaborative.org
[2]GreenScreen for Safer Chemicals® method: http://www.greenscreenchemicals.org/
[3]GreenScreen (GS) Benchmark scores of chemical ingredients: Benchmark 1 (Avoid, chemical of high concern), Benchmark 2 (Use but search for safer substitutes), Benchmark 3 (Use but still opportunity for improvement), Benchmark 4 (Prefer, safer chemical).

TABLE OF INGREDIENTS

Component	Role	Weight ratio	CAS[1]	GreenScreen®[,2]	Other applicable score (for more details refer to the HPD®)
Glass	Main component	97.4% - 98.7%	7631-86-9, 1305-78-8, 1344-28-1	LT-P1	LT-UNK and BM-2 scores also present
Spacer bar #1	Spacer bar	0.1% - 0.3%	9003-07-0	LT-UNK	-
Spacer bar #2			9003-54-7	LT-UNK	-
Spacer bar #3-S1			7429-90-5, 7440-66-6, 7439-96-5, 7440-47-3	LT-P1	LT-UNK scores also present
Spacer bar #3-S 2			7429-90-5	LT-P1	-
Desiccant	Desiccant	0.1% - 0.2%	14808-60-7	LT-1	LT-UNK scores also present
Primary seal - PBI	Sealant	0% - 0.01%	1333-86-4	LT-1	LT-UNK scores also present
Secondary seal #1-S1		1.4% - 1.6%	1333-86-4	LT-1	LT-UNK scores also present
Secondary seal #1-S2			1333-86-4	LT-1	LT-P1, LT-UNK and BM-3 scores also present
Secondary seal #2		1.0% - 1.2%	14808-60-7	LT-1	LT-P1, LT-UNK, BM-2 and BM-3 scores also present
Coating #3	Coating	0.7%	Undisclosed	LT-1	LT-P1, LT-UNK and BM-2 scores also present
Coating #4		0.1%	1345-16-0, 68186-85-6, 13463-67-7, 8007-18-9	LT-1	LT-P1 and LT-UNK scores also present

[1]Only the CAS numbers with the score of highest concern are listed. The complete list of substances can be found in the HPD®.
[2]GS List Translator (LT) scores of chemical ingredients: LT-1, likely GS Benchmark 1; LT-P1, possible GS Benchmark 1; LT-U or LT-UNK, present on GS Specified Lists but there is insufficient information to classify the hazards as LT-1 or LT-P1 (does not mean the chemical is safe).

Validated Eco-Declaration – Declaration of chemical ingredients
Methodology: validation of the documentation confirming the methodology and reporting of chemical ingredients.
Vertima's procedure: VERT-032009–01, Second Edition.

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TECHNICAL PERFORMANCES

PERFORMANCE TESTS

Non-exhaustive list. Refer to the technical documentation of Sealed units for more details.

- ASTM E 2190 - Standard Specification for Insulating Glass Unit

The following table provides an example of the type of performance data that Laurier Architectural can provide during a project.

SIMULATION RESULTS

Double sealed unit 25 mm - 6 mm cl. Low-E SNX 62/67 (F2) 13 mm Swiss Ultimate Spacer, Argon gas, 6 mm clear

Produt code	Thermal energy										Visible light				Transmission UV		
	U-Value				Rsi and R-imp value Winter		(SC)	(SHGC)	Relative heat gain								
	Winter		Summer														
	w/m²-k	Btu/h-ft²-k	w/m²-k	Btu/h-ft²-k	R (si)	R (imp)	C.A.	CGCS	W/m²	Btu/h-ft²	Tr	Abs	Ext Ref.	Int Ref.	Tdw-k	Tdw-ISO	at 300nm
	1.34	0.24	1.18	0.21	0.75	4.24	0.30	0.262	199	63.1	60.9%	28.3%	10.7%	11.2%	19.1%	39.1%	6.1%

Produt code	Solar energy					Efficiency indicator			
	Tr	Ext Ref.	Int irradiate	Abs tot	Total rejet	ISS	Light to SHG	% IED	FRC
2.265	22.7%	39.3%	40.2%	38.0%	73.8%	2.02	2.33	71.7%	81

Technical data sheet available according to the glazing configuration of your projet. Contact our technical team.

CERTIFICATIONS

INSULATING GLASS IGCC CERTIFICATION COUNCIL

IGMA INSULATING GLASS MANUFACTURERS ALLIANCE

All Sealed units manufactured by Laurier Architectural meets the requirements of the IGCC/IGMA certification program and all conformity test to the ASTM E2190 Standard.

Source : www.laurier.net

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TECHNICAL PERFORMANCES (CONTINUED)

WARRANTY

Laurier Architectural warrants its Sealed units for a period of 5 years against failure.

For more information on Laurier Architectural's warranties, contact our customer service department.

Source : www.laurier.net

MANUFACTURER'S ENVIRONMENTAL MANAGEMENT PROGRAM

MANUFACTURER'S COMMITMENT

The safety of our workforce and environment protection are top priority for Laurier Architectural.

We make sure our workers work in a safe and healthy work environment and have access to the necessary protective equipment. Work procedures are set up to ensure that work is performed safely.

We strive to reduce our environmental footprint by offering a selection of energy-efficient and environmentally friendly products, through sound resource management and a waste recycling program:

- We use the heat of our tempering furnaces to heat the inside of the plant.
- We have a closed circuit water filtration and recycling system that reduces our water consumption.
- Rather than sending our glass waste to the landfill, it is picked up by an external supplier for use as raw material in the manufacturing of their products.
- We use lead-free inks in the coatings of our products.

Source : www.laurier.net

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ENVIRONMENTAL DATA SHEET
SEALED UNITS

LAURIER Architectural
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PRODUCT CONTRIBUTION SUMMARY

LEED® v4 requirements for Building Design + Construction (BD+C)
New Construction, Core and Shell, School, Retail, Data Centers, Warehouse and Distribution Centers, Hospitality and Healthcare.

LEED® v4 requirements for Interior Design + Construction (ID+C)
Commercial Interiors, Retail and Hospitality.

MATERIALS AND RESOURCES		PRODUCT CONTRIBUTIONS	
MR	**Building Product Disclosure and Optimization – Environmental Product Declaration (EPD)** Option 1: Environmental Product Declaration (1 point) Sealed units contribute to this credit due to the availability of a product-specific EPD (Type III) and is valued as 1 whole product out of the 20 needed for the purposes of credit achievement calculation.	**Contribute**	**ENVIRONMENTAL IMPACTS** Product-specific EPD (Type III) compliant with ISO 14025:2006
MR	**Building Product Disclosure and Optimization — Sourcing of Raw Materials** Option 2: Leadership extraction practices (1 point) May also contribute to the location valuation factor if the product is sourced (extracted, manufactured, purchased) within 160 km of the project site.	**Contribute**	**ATTRIBUTES** Recycled Content Pre-consumer (0% - 9.1%) Post-consumer (0% - 6.1%) (see pages 2 and 3)
MR	**Building Product Disclosure and Optimization — Material Ingredients** Option 1: Material ingredients reporting (1 point) Sealed units contribute to this credit due to the availability of Health Product Declarations® and is valued as 1 whole product out of the 20 needed for the purposes of credit achievement calculation.	**Contribute**	**INGREDIENTS AND EMISSIONS** HPD® version 2.1 Health Product Declaration®

INDOOR ENVIRONMENTAL QUALITY		PRODUCT CONTRIBUTIONS	
EQ	**Low-Emitting Materials** Option 1: Product category calculation (1-3 points) For the product category, walls, thermal and acoustical insulation, 100% of all products must meet the requirements.	**Do not contribute[1]**	**INGREDIENTS AND EMISSIONS** [1]Must be tested and determined compliant to the California Department of Public Health (CDPH) Standard Method v1.2-2017.
EQ	**Daylight (1-3 points)** Design to maximize daylight Consider how best to allocate interior space to ensure that daylight is available in all regularly occupied spaces. Enclosure design and furniture selection will affect daylight penetration. Possible design strategies include the following: Use transparent partitions or interior glazing to provide daylight to enclosed spaces. Unlike the BD+C rating system, ID+C rating system includes any permanent interior obstructions as well as moveable furniture and partitions.	**Contribute**	**TECHNICAL PERFORMANCES** Within an assembly, Monolithic Glass may contribute to this credit if design choices are coherent with the credit.

PILOT CREDITS		PRODUCT CONTRIBUTIONS	
PC	**Pilot Credit 55 - Bird Collision Deterrence** Reduce bird injury and mortality from in-flight collisions with buildings. (1 point)	**Contribute**	Within an assembly, laminated glass with bird-safe design may contribute to this pilot credit.

It is important to note that the points identified above are linked with each of the credits where the product contributes as part of a LEED® v4 certification process. The product itself is only one element among others to reach the target score.

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