

NGA GLASS CONFERENCE™ MILWAUKEE

AUGUST 6-8, 2024

NGA

NATIONAL GLASS ASSOCIATION with GANA



NGA Advocacy Committee



NGA Glass & Glazing Advocacy Days

May 14-15, 2024
Washington, DC

NGA
NATIONAL GLASS ASSOCIATION with GANA



Event Recap: glass.org/event/2024-glass-glazing-advocacy-days



Dr. Zack Valdez, Advisor to the Department of Energy's Office of Manufacturing and Energy Supply Chains



Representative Buddy Carter, Republican, Georgia



Jeff Grove, Vice President of Global Policy, ASTM

- Marc LaFrance, Windows Technology Lead, Department of Energy
- Marek Laco, Professional Staff Member, House Committee on Education and the Workforce
- Doug Anderson, Manager of the Energy Star Windows Program, Environmental Protection Agency



Handwritten signature in blue ink

NGA Members attending: 35 from 28 companies
Legislative Offices visited: 36 from 16 states
Steps walked per attendee: ~ 14,000

Updated bill to extend 48C tax credit deadline for projects using electrochromic glass

- Legislative aide for Senator Markey (MA) met with NGA members at NGA Glass & Glazing Advocacy Days
- On June 21, Senator Markey co-sponsored an updated bill to extend the tax credit deadline.
- Did NGA members and our one-pager have any influence on the Senator co-sponsoring the bill?

“It was wonderful to meet with NGA members and listen to their priorities including extending the tax credit.

This feedback along with other stakeholders was helpful in putting together Dynamic Glass 2.0.”







- Office of Senator Markey

Summary of Social Media Impact

12 posts, **25,123 views** on LinkedIn

ON #NGAADVOCACYDAYS

Summary of social media posts from LinkedIn during #NGAADVOCACYDAYS:

- Jenni Chase** (National Glass Association (NGA)) shared a post about workforce development, stating that Democrats and Republicans, Senators and Congressmen and women can agree on Workforce Development. She reported that the National Glass Association (NGA) supports legislation for workforce development.  It turns out there IS something Democrats and Republicans, Senators and Congressmen and women can agree on: Workforce Development! I'm happy to report that the National Glass Association (NGA)'s support for legislation... SHOW MORE... 2 mo. ago
- Jon Griggs** (Guardian Glass North America) shared a post thanking Senator Markwayne Mullin for visiting with NGA volunteer Tristar Glass, Inc.'s Rob Carlson. Senator Mullin represents the great state of Oklahoma and is also a successful business owner with a focus on the glass industry.  THANK YOU... to Senator Markwayne Mullin for visiting with NGA volunteer Tristar Glass, Inc.'s Rob Carlson. Senator Mullin represents the great state of Oklahoma and is also a successful business owner with a focus on the... SHOW MORE... 2 mo. ago
- Jon Griggs** (Guardian Glass North America) shared a post thanking the National Glass Association (NGA) members for making this year's Glass and Glazing Advocacy Days another big success. He mentioned that they brought four key issues to legislators: high performance glazing, bird-friendly glass, and more.  Guardian Glass North America participated in the 2024 National Glass Association (NGA) Advocacy days. On day one we met with representatives from the DOE and EPA. On day two Approximately 40 individuals from the glass and... SHOW MORE... 2 mo. ago
- Nicole Harris** shared a post celebrating the conclusion of the third successful Glass & Glazing Advocacy Days. She mentioned that NGA staff, together with industry members, made the case for glass and glazing systems as sustainable, eco-friendly.  We just concluded our third successful Glass & Glazing Advocacy Days, where National Glass Association (NGA) staff, together with industry members, made the case for glass and glazing systems as sustainable, eco-friendly... SHOW MORE... 2 mo. ago
- Diana San Diego** shared a post quoting a saying: "a journey of a thousand miles begins with a single step." She mentioned that today it was more like 10,000+ steps - lobbying for school safety, workforce development, high performance glazing and bird friendly glass through #NGA's Glass Advocacy Days.  They say "a journey of a thousand miles begins with a single step." Today, it was more like 10,000+ steps - lobbying for school safety, workforce development, high performance glazing and bird friendly glass through #NGA's Glass... SHOW MORE... 2 mo. ago
- Georgia Scaffano** shared a post thanking the National Glass Association (NGA) members for making this year's Glass and Glazing Advocacy Days another big success. She mentioned that they brought four key issues to legislators: high performance glazing, bird-friendly glass, and more.  A huge thanks to our National Glass Association (NGA) members for making this year's Glass and Glazing Advocacy Days another big success! We brought four key issues to legislators this year: high performance glazing, bird-friendly... SHOW MORE... 2 mo. ago
- Kyle Sword** shared a post (partially visible).





NGA Glass & Glazing Advocacy Days

May 14-15, 2024
Washington, DC



THANK YOU TO OUR HOSPITALITY SPONSORS

PREMIUM HOSPITALITY SPONSORS



HOSPITALITY SPONSOR



One-Pagers for Legislators

- Share how glass is an adaptable, sustainable, energy-efficient, strong, beautiful, safe, and essential building product
- Handouts in an easy one-pager format for legislators and stakeholders.
- Tell your glass story on the topic(s) important to your company.



- High-Performance Windows Can Help Save the World
- School Security: Windows & Doors Respond First
- Saving Birds with Effective Glass Solutions
- Training and Upskilling Workers to meet labor demand

Ad Hoc Strike Force Team

GSA P100 2024 updates

"The 2024 P100 establishes exceptional benchmarks for:

- *Electrification*
- *Embodied Carbon*
- *Energy Efficiency*
- *Grid-Interactive Efficient Buildings*
- *Water Reuse*
- *Construction Decarbonization*
- *Labor Practices*

Ad Hoc Strike Force Team

GSA P100 2024 updates

- *Thermal Performance Requirements*
 - Stricter U-factor and SHGC requirements
 - Expanded range requiring thermally broken frames: require full thermal breaks in zones 2-8, and at least thermally improved in zones 0-1.
- *Daylighting and Views*
 - Encouraging use of glazing to maximize daylight, promote occupant comfort, and encourage energy savings. Continued reference of NGA Bird Friendly Design Guide.
- *Security and Safety*
 - Specific requirements for blast-resistant glazing in buildings that require higher safety measures



Ad Hoc Strike Force Team

GSA P100 2024 updates

○ *Sustainability and Green Building Standards*

- Alignment with the International Green Construction Code (IgCC) and other sustainability standards, promoting the use of energy-efficient glazing products (low-E coatings).

○ *Inclusion of ICC/MBI Standards*

- Incorporating the ICC/MBI 1200 and 1205 standards for off-site construction, covering the entire lifecycle of modular construction, including glazing and fenestration aspects.

Ad Hoc Strike Force Team

GSA P100 2024 updates

- *Stricter Requirements for Fenestration Air Leakage*
 - Air leakage standard tightened to 0.30 cfm/ft² of window area at test pressure of 0.3in water
 - Previous requirement was 0.40 cfm/ ft²
 - Expands verification testing requirements for air leakage
- Updated recommended options for historic buildings to include replacement windows, commercial secondary windows, low-e panels, VIG, low-e film, and automated insulated shading.

Ad Hoc Strike Force: Sec. 48 investment tax credit for commercial energy property

- Tax credit for **electrochromic glass** was added as part of IRA

I.R.C. § 48(a)(3)(A)(ii) — equipment which uses solar energy to illuminate the inside of a structure using fiber-optic distributed sunlight, or **electrochromic glass** which uses electricity to change its light transmittance properties in order to heat or cool a structure, but only with respect to property the **construction of which begins before January 1, 2025**,

- However, specific to only electrochromic glass (not other types of dynamic glazing) and very short timeframe.
- NGA submitted comments to Treasury on implementation:
 - Interpret language to include other dynamic glazing technologies as defined by ASHRAE 90.1 and IECC. **Answer: No**
 - Clarify the tax credit applies to not just the glass but the entire system (framing, controls, installation labor). **Answer: Yes!**

Sec. 48 investment tax credit for commercial energy property

May be opportunities to expand and extend the tax credit in the coming year:

- Sen. Markey (D-MA) and Sen. Wicker (R-MS) introduced Dynamic Glass 2.0 Act
 - Extends the date to Jan 1, 2033
 - Still only electrochromic glass, but may be able to expand to other dynamic glazing and other high performance fenestration.
 - ASHRAE 90.1-2019: “**dynamic glazing**: any glazing system/glazing infill that has the fully reversible ability to change its performance properties, including U-factor, solar heat gain coefficient, or visible transmittance. This includes, but is not limited to, shading systems between the glazing layers and chromogenic glazing.”
 - How define other high performance systems? U-factor?
- Other broader legislation affecting sections 48 and 48E will be considered next year.

Sustainability Subcommittee

Kayla Natividad, NSG Pilkington

EC3 Tool: Driving Low-Carbon Supply Chain Innovation with Open Access Tools & Data

1. EC3 scope, workflows
2. Overview of glazing/fenestration category development project for the EC3 tool
3. Project status



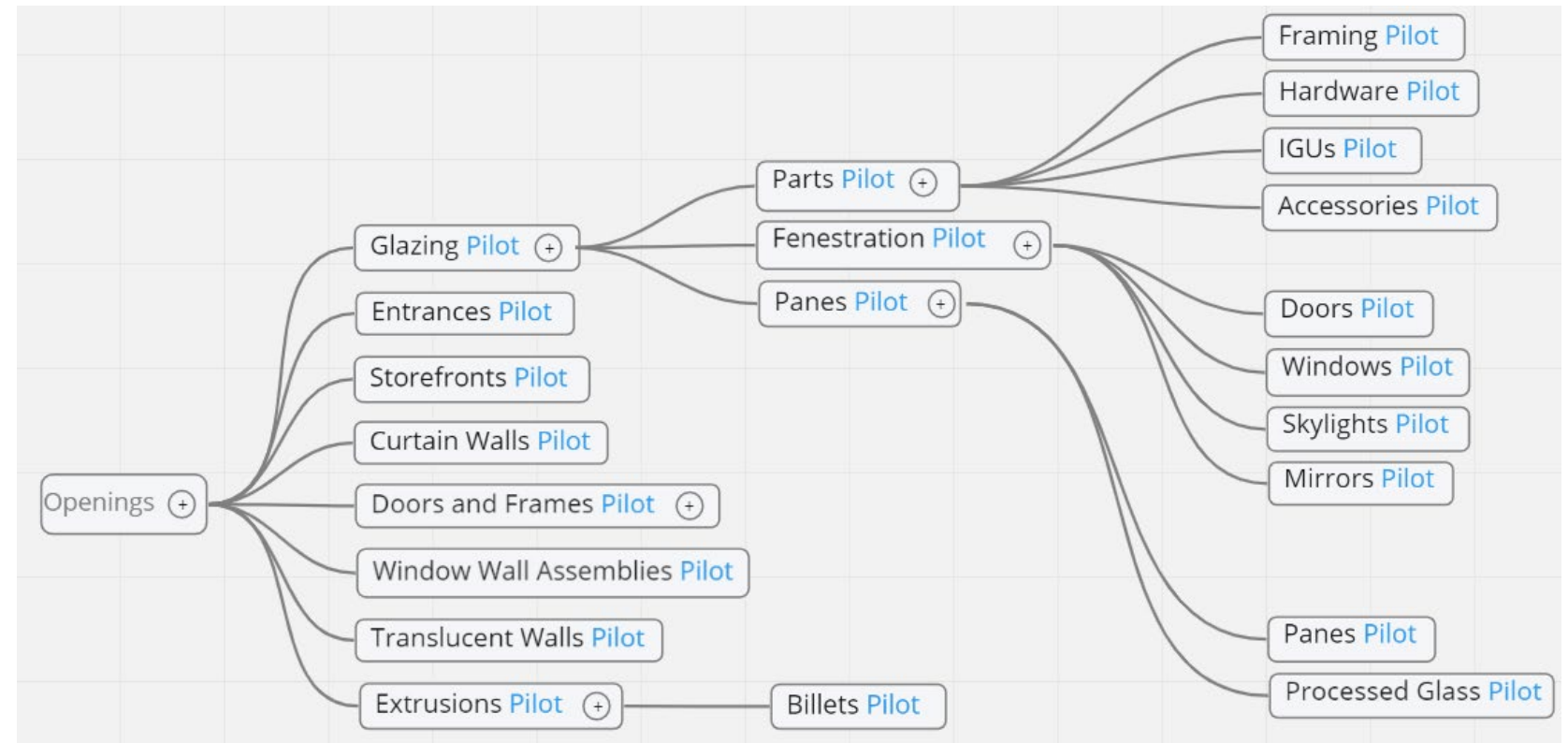
Building Transparency

Contact Georgia Scalfano
gscalfano@glass.org

Glazing/Fenestration Category Development Project

- Iterative process to decide category layout, correct nomenclature, critical specifications that affect embodied carbon
- ‘Calculators’ for quantifying embodied carbon of assembly products (IGU, curtain walls, windows)
- Participants from NGA, FGIA, company representatives

New EC3 Categories and Calculators













*Does not show all child categories

Current Glazing/Fenestration PCRs

10 active PCRs in EC3 database

- For glazing in North America – Flat Glass, IGUs, Processed Glass
 - *UL PCR for Part B: Processed Glass*
 - *NSF International PCR for Flat Glass*
 - *EPD International AB PCR for Flat Glass Products Used in Buildings and Other Construction Works*

	Bau EPD GmbH
	EarthSure
	IBU
	SuMPO
	NSF International
	EPD Italy
	UL
	EPD International AB
	NSF International
	CEN

Current Glazing/Fenestration EPDs in North America

Processed Glass

- 8 Processed Glass EPDs

Insulating Glass Units











- 20 Insulating Glass Unit EPDs

Flat Glass

- 8 valid Flat Glass EPDs

Curtain Walls

- 6 curtain wall EPDs

	Bau EPD GmbH
	EarthSure
	IBU
	SuMPO
	NSF International
	EPD Italy
	UL
	EPD International AB
	NSF International
	CEN

Next Steps for EC3 Tool

- Expecting an increase in EPD activity:
 - Updating of PCRs
 - Production of EPDs and EPD tools/generators
- BT will work with industry and EPD developers to reflect these developments in the EC3 tool
- Continue to improve digitization capabilities to ingest EPDs
- Work on simplified user interface for policy compliance



**Building
Transparency**

BuildingTransparency.org

- [Video tutorials](#)
- [Sign up for EC3](#)

Contact Georgia Scalfano
gscalfano@glass.org


Product Category Rule (PCR) & Environmental Product Declaration (EPD) Update

Flat Glass PCR

- NGA PCR for Flat Glass was published by NSF describing requirements for LCAs and EPD of flat glass
- Valid through Sept. 30, 2025

Product Category Rule
for Environmental Product Declarations

NGA PCR for Flat Glass: UN CPC 3711




NSF SustainabilitySM
National Center for
Sustainability Standards

Program Operator
NSF International
National Center for Sustainability Standards
Valid through September 30, 2025
ncss@nsf.org

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Flat Glass EPD: Industry Average


- NGA flat glass member companies (members of Forming Committee) published an industry average EPD for flat glass produced in the US in December 2019.
 - Average GWP is 1,430 kg CO₂ eq
- Valid through Dec. 20, 2024



Environmental Product Declaration

According to ISO 14025

Flat Glass



This EPD was not written to support comparative assertions. Even for similar products, differences in declared unit, use and end-of-life stage assumptions, and data quality may produce incomparable results. It is not recommended to compare EPDs with another organization, as there may be differences in methodology, assumptions, allocation methods, data quality such as variability in data sets, and results of variability in assessment software tools used.

Issue Date: December 20, 2019

Valid Until: December 20, 2024

Declaration Number: 121

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ast Conshohocken, PA 19428-2959, United States.

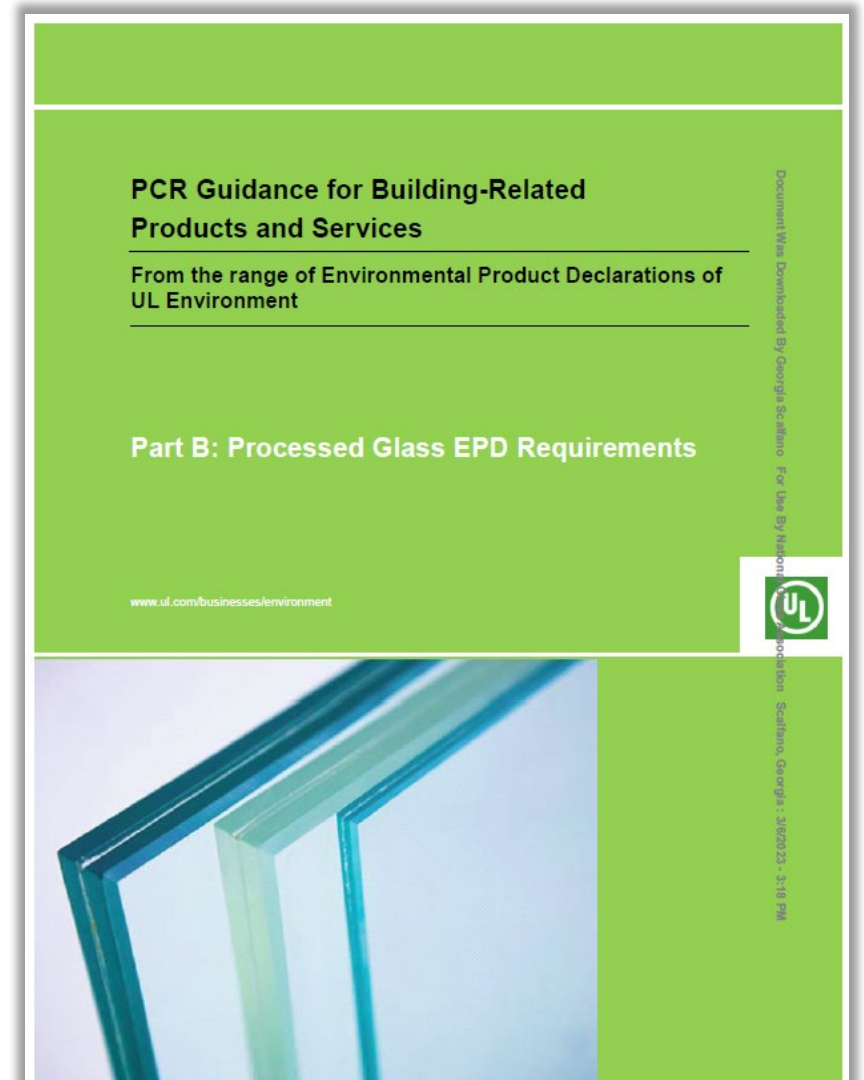
Declaration Number: ASTM-EPD121

Processed Glass PCR

- PCR Guidance for Building-Related Products and Services Part B: Processed Glass EPD Requirements (Established Aug. 2016)
 - Original expiration date Dec. 6, 2023

Updates

- UL will start working with industry stakeholders to update. EPA PCR requirements. EPA Grant

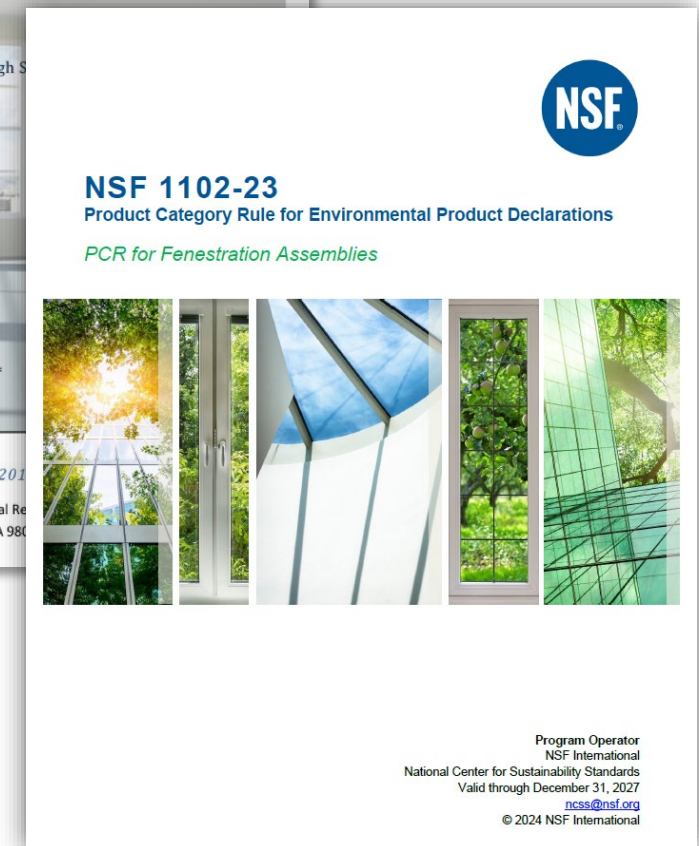
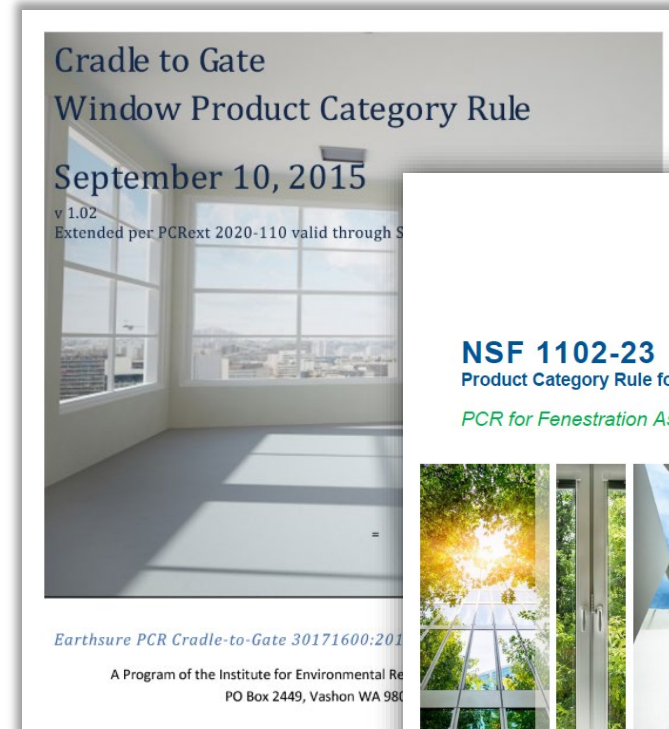


Windows PCR (Fenestration PCR)

- Windows PCR established September 10, 2015

Updates

- Updated draft PCR reviewed by LCA expert panel
- NSF Fenestration PCR published Jan. 2024



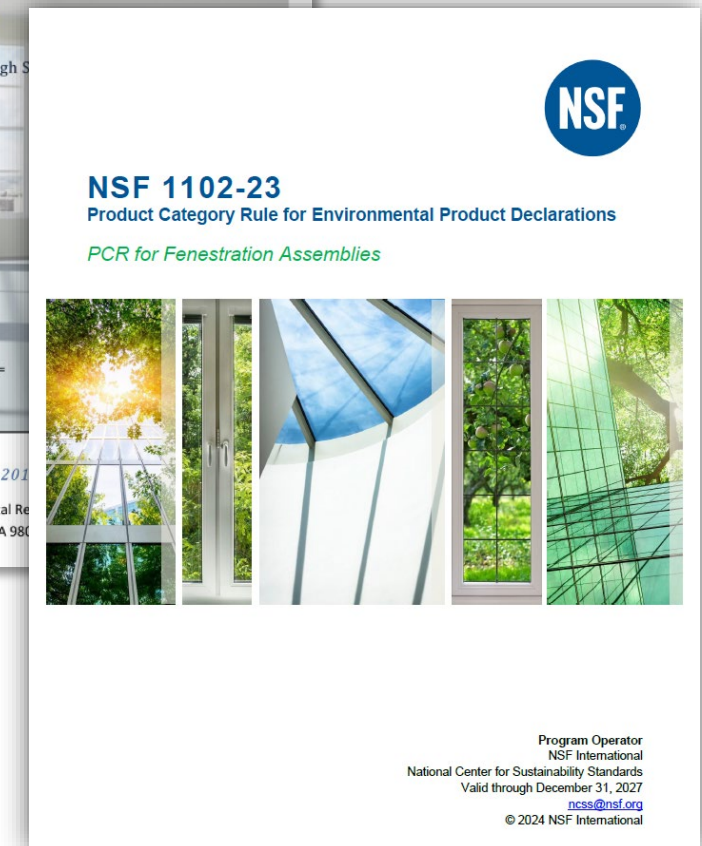
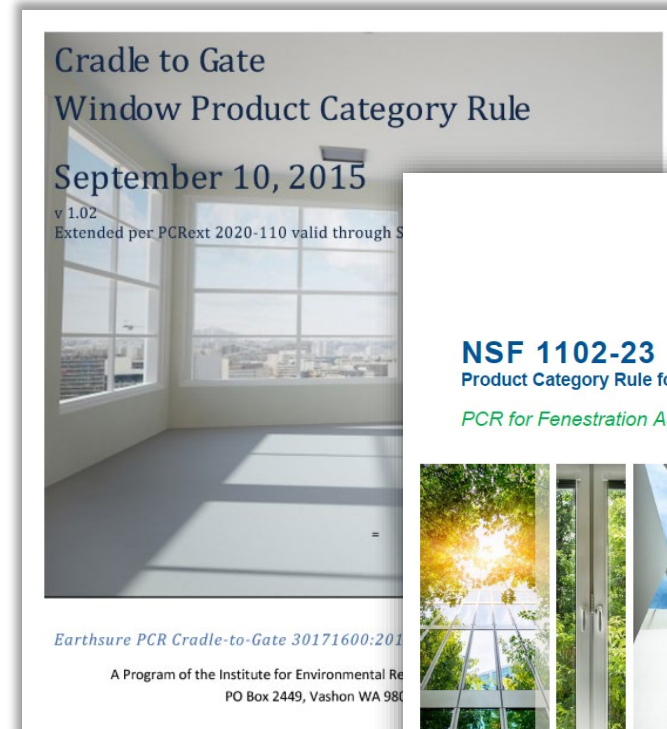
Windows PCR (Fenestration PCR)

- **Windows PCR Scope**

- Provide detailed method for developing EPD to support comparable, informed, and objective sustainable purchasing of windows.
- Includes residential windows and ribbon/curtain wall windows.

- **Fenestration PCR Scope**

- Provide detailed method for developing EPD to support comparable, informed, and objective sustainable purchasing of windows.
- Includes exterior-grade, finished, assembled fenestration assemblies that selectively permit the passing of air, daylight, or people. Includes skylights, windows, curtain walls, storefronts, and doors.



Other NGA Sustainability Resources

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Flat Glass Global Warming Potential

The request:

When states or jurisdictions compile global warming potential for flat glass, we request setting the Global Warming Potential (GWP) limit for flat glass to:

1716 kg CO₂ eq.

The request of 20% above the industry-average referenced in Declaration Number ASTM-EPD121 is due to the inherent uncertainty of the life cycle assessment process and the inclusion of estimated variables and assumptions including, but not limited to, weighted averages, upstream/ downstream transportation and building/service life.

The issue:

Stakeholders and sustainability programs want to better understand the environmental performance of glass products manufactured for buildings.

IANA Product Category Rule (PCR) for Flat Glass was published by NSF in 2014 describing the requirements for life cycle assessments (LCAs) and environmental product declaration (EPD) of flat glass.

NGA flat glass* member companies published an industry-average EPD for flat glass sold in the US in December 2019 (ref: ASTM-EPD121).

The EPD scope includes raw material production, transport of materials, manufacturing processes, product packaging, onsite storage and manufacturing waste (cradle to gate).

*members of the Farming Committee

Relative contribution of manufacturing inputs and outputs to Global Warming Potential

The strategy:

Results of the Flat Glass Industry-Average EPD:

- The industry-average Global Warming Potential for flat glass is 1430 kg CO₂ eq.
- Raw materials and direct emissions are the largest drivers of potential environmental impact of flat glass products.
- Many North American flat glass plants have taken measures to more efficiently control emissions using environmental emission control systems.

The declared unit evaluated is one metric tonne (1000 kg) of flat glass, maintained for 30 years.

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ABOUT NGA | MEMBERSHIP | RESOURCES | EVENTS

RECYCLABILITY OF ARCHITECTURAL GLASS (FB40-14) - DOWNLOADABLE

Standard Price

\$0.00

Member Price

\$0.00

QUANTITY:

ADD TO CART

DETAILS

PHOTOS

FIND RELATED PRODUCTS

PRODUCT DETAILS

The interest in recycling architectural glass products is growing; however, information on companies offering recycling services is fragmented and difficult to find. The purpose of this bulletin is to identify the different products that can be recycled and those that cannot. Another objective is to clarify any misconceptions regarding glass recycling and identify sources for recycling architectural glass. Finally, examples of a variety of products that can be created from the use of recycled glass are provided.

This original version of this document was published in January 2014. This version was updated and published in June 2021. All purchases will be electronically accessed or delivered.

- *Download from NGA Store:*

- FB40-14 (2021) [Recyclability of Architectural Glass](#)
- FM06-20 [General EPD Education](#)
- FM07-21 [Flat Glass Industry Environmental Transparency Documents](#)

- *Download from glass.org*

- [NGA One-Pager Flat Glass Global Warming Potential](#)

New Business

- Advocacy One-Pager *Window Recyclability: Circular Economy*
 - Define a clear “ask”
 - Tie to existing bill?



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Window Recyclability: Circular Economy

The request:

- Provide tax incentives for recycling glass as existing buildings are remodeled and/or demolished, beginning with requirements for government buildings.
- Support glass recycling infrastructure.

The issue:

Approximately 10 million tons of flat glass was manufactured in 2018. 2.5 million tons (25%) was recycled as glass cullet 7.5 million tons (75%) was incinerated/landfilled.

Glass recycled materials can be used in a wide variety of industries from recycling back into the melt furnace to make new windows, glass containers (jars & bottles), road grade, fiberglass, reflective highway paint, landscaping products, countertops, and coastal restoration materials.

>50% of the 2050 building stock exists today with single and double pane windows, so RETROFIT will be key to meeting 2050 energy conservation goals for buildings. Windows that are removed from buildings at the time of replacement can be recycled.

Glass is infinitely recyclable which supports a circular economy and reduces waste and landfill. These benefits drive material choice decisions, for example glass containers instead of less recyclable materials such as single use plastics.

Recycling could soon become competitive due to carbon costs increase and landfilling becoming more expensive.

The glass recycling industry creates jobs and tax benefits.

The strategy:

Recycling and reusing glass saves raw material usage. Incentivization drives research and development and innovation which will speed adoption.

Glass recycling helps reduce the cost and emission burdens on glass manufacturing.

Recycling glass reduces raw material mining, reduces furnace fuel needed to manufacture glass, and reduces the furnace emissions from glass plants.

Higher recycled material content is a key element for future decarbonization efforts for the glass industry.

Replacement windows can be a cost-effective retrofit solution, as shown in GSA: GPG-049 report, 2021.

Cost-Effective Across Climate Zones*
Positive return on investment at average GSA utility rates, \$0.11/kWh and \$7.43/mmBtu

CLIMATE ZONE	CITY	WHOLE BUILDING ENERGY SAVINGS Electricity	ENERGY COST SAVINGS \$/SqF	ANNUAL SAVINGS \$/SqF	SAVINGS %	PAYBACK ¹ YRS	IRR ² annual IRR (%)
1A	Miami, FL	6.1	60.27	\$14,480	119	11.2	1.59
2A	Houston, TX	6.1	60.30	\$14,888	129	10.1	1.76
2B	Phoenix, AZ	18.7	68.35	\$18,710	144	6.7	2.05
3A	Atlanta, GA	10.2	60.35	\$16,710	144	8.7	2.08
3B	Las Vegas, NV	10.9	60.36	\$19,304	154	8.4	2.11
3C	San Francisco, CA	6.3	65.28	\$15,016	134	10.4	1.64
4A	Baltimore, MD	12.4	60.43	\$13,660	144	7.1	2.52
4B	Chicago, IL	15.4	60.44	\$14,449	134	6.4	2.70
4C	Denver, CO	12.9	60.47	\$20,205	144	6.5	2.74
4D	Minneapolis, MN	15.4	60.54	\$20,919	134	6.4	3.17
AVERAGE SAVINGS		11.2	60.38	\$20,432	135	8.4	2.2

*National Glass Association (NGA) combined with the Glass Association of North America (GANA) in 2018 to create the largest trade association serving our industry. We develop standards, create technical resources, and promote and advocate for glass in the built environment. Learn more at glass.org/about/nga/advocacy. For further information on glass industry sustainability efforts and CO₂ eq, please feel free to contact NGA Technical Staff at <mailto:technicalsvcs@glass.org>.