



# Environmental Product Declaration

## EFCO Projected & Casement Windows



EFCO Series 2700 Projected

This Environmental Product Declaration (EPD) was prepared in accordance with ISO 14025 and 21930 using the Earthsure Cradle to Gate Window Product Category Rule 30171600-2015. EPDs are not intended to make comparisons with other products due to varying background data in LCA softwares and/or varying program operator rules or Product Category Rules. An EPD is informational and does not warrant performance. Valid 22 May 2017 through 21 May 2022.

### EFCO Corporation

EFCO is a leading manufacturer of architectural aluminum window, curtain wall, storefront and entrance systems for commercial architectural applications. Headquartered in Monett, Missouri, our mission is to be the most trusted supplier in commercial architecture. We seek to provide customers with the highest level of quality, innovation, value, and service.

LCA performed by Four Elements Consulting, LLC. EPD conformance with Earthsure PCR & ISO 14044 validated by LCA Certified Professional Rita Schenck. EPD and data were independently, externally, verified according ISO 14025. For more information contact [anne@fourelementslc.com](mailto:anne@fourelementslc.com) or [earthsure@iere.org](mailto:earthsure@iere.org).

<b>Cradle-to-Gate Results Summary</b>		
Declared unit: 1 m <sup>2</sup>		
Mass per m <sup>2</sup> : 38.2 kg		
<b>Potential Environmental Impacts</b>		
Global Climate Change	kg CO <sub>2</sub> eq	150
Acidification	kg SO <sub>2</sub> eq	0.96
Eutrophication	kg N eq	0.07
Ozone Depletion	kg CFC-11 eq	6.9E-06
Photochemical Smog Formation	kg O <sub>3</sub> eq	9.1
<b>Resources, Energy, &amp; Waste</b>		
Non-renewable Energy Resources	MJ HHV	2,000
Renewable Energy Resources	MJ HHV	390
Non-renewable Material Resources	kg	120
Renewable Material Resources	kg	1.6
Non-Hazardous Waste Production	kg	3.1
Hazardous Waste Production	kg	0
Freshwater Consumption	liter	110
<b>Other Declarations</b>		
Recyclable content: aluminum 30%, glass 62%		
Hazardous materials in >0.1% of window: none		

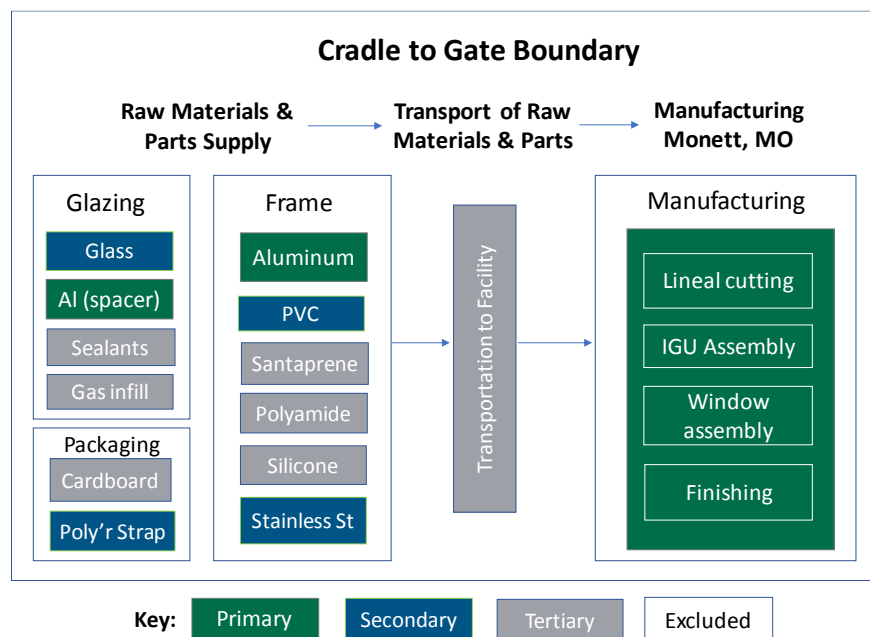
## EFCO Projected & Casement Windows



Projected and casement windows are hinged at the sides and swing outward. They are opened using levers or handles. EFCO offers a wide range of configurations that include project-in, project-out, casement and tilt-turn. EFCO's projected windows provide egress, ventilation, and window-washing functionality in addition to natural light.

EFCO projected and casement windows include the following product lines: Series 2700, Series 2900, Series 325X/325G, Series 450X/450G, Series 510-I, Series 550-I/550G, Series 3902, Series 3903, Series 810-I/810G, Series PX32/PG32.

## System Boundaries and Data



Capital equipment

Personnel impacts

Non-window components

Mat'ls to recycling

The LCA evaluated the cradle to gate of the window as required by the PCR. Primary data are 2015 from the Monnett, MO, facility. Secondary and tertiary data come from the U.S. LCI and

EcoInvent databases. EcoInvent data are customized to U.S. conditions. The selection of these databases ensures a plausible set of generic and background data. Commercially-available SimaPro LCA software was used to model the window.



## Contribution Analysis Results

<b>1 m2 Projected &amp; Casement Window</b>		Raw Materials Production	Transport to Plant	Manuf- acturing	<b>Total</b>
Impact Category	Units				
Global Climate Change	kg CO2 eq	90%	1.9%	7.6%	<b>150</b>
Acidification	kg SO2 eq	92%	2.2%	5.7%	<b>0.96</b>
Eutrophication	kg N eq	92%	1.7%	6.6%	<b>0.07</b>
Ozone Depletion	kg CFC-11 eq	80%	0%	20%	<b>6.85E-06</b>
Photochemical Smog Formation	kg O3 eq	89%	6.5%	4.7%	<b>9.1</b>
Inventory Result	Units				
Non-renewable Energy Resources	MJ HHV	88%	2.2%	10%	<b>2,000</b>
Renewable Energy Resources	MJ HHV	99%	0%	1.1%	<b>390</b>
Non-renewable Material Resources	kg	99%	0%	0.9%	<b>120</b>
Renewable Material Resources	kg	93%	0%	6.8%	<b>1.6</b>
Non-Hazardous Waste Production	kg	91%	0%	8.6%	<b>3.1</b>
Hazardous Waste Production	kg	n/a	n/a	n/a	<b>0</b>
Freshwater Consumption	liter	77%	0%	23%	<b>110</b>

May not add to 100% due to rounding. 0% means less than 0.1%

## Performance Standards & Certifications

EFCO products are tested, certified and labeled for the following performance standards:

- AAMA/WDMA/CSA 101/IS2/A440 (NAFS-North American Fenestration Standard/Specification for windows, doors, and skylights)
- ASTM E283, AAMA 501 and NFRC 400 Air Leakage
- ASTM E331 and AAMA 501 Water Penetration
- ASTM E330 and AAMA 501 Static Structural Performance
- AAMA 1503, AAMA 507 and NFRC 100 Thermal Transmittance – U-Factors
- AAMA 1503, CSA A440.2 and NFRC 500 Condensation Resistance (CRF,I,CR)
- AAMA 507 and NFRC 200 Overall Solar Heat Gain Coefficient and Visible Transmittance (SHGC) & (VT)
- AAMA 1801, ASTM E90 and ASTM E1425 Sound Transmission (STC, OITC)



## References

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Earthsure. "Cradle to Gate Window Product Category Rule." September 2015, v.1.02. Earthsure PCR Cradle-to-Gate 30171600:2015.

ISO 14040:2006, The International Standard of the International Standardization Organization, Environmental management. Life cycle assessment. Principles and framework.

ISO 14044:2006, Environmental management – Life cycle assessment – Requirements and guidelines.

ISO 14025:2006, Environmental Labels and Declarations – Types III Environmental Declarations – Principles and Procedures.

ISO 21930-2007 Sustainability in building construction – Environmental declaration of building products.

Ecoinvent Centre, Ecoinvent data v2.2 (US-EI) (Dübendorf: Swiss Centre for Life Cycle Inventories), retrieved from SimaPro (2013 update).

National Renewable Energy Laboratory (NREL): U.S. Life-Cycle Inventory Database. 2005. Golden, CO. Found at: <http://www.nrel.gov/lci/database>.

PRé Consultants: SimaPro 8.0 LCA Software. 2013. The Netherlands.

Tool for the Reduction and Assessment of Chemical and other Environmental Impacts (TRACI) version 2.1 - User's Manual. Washington, D.C.: U.S. EPA.