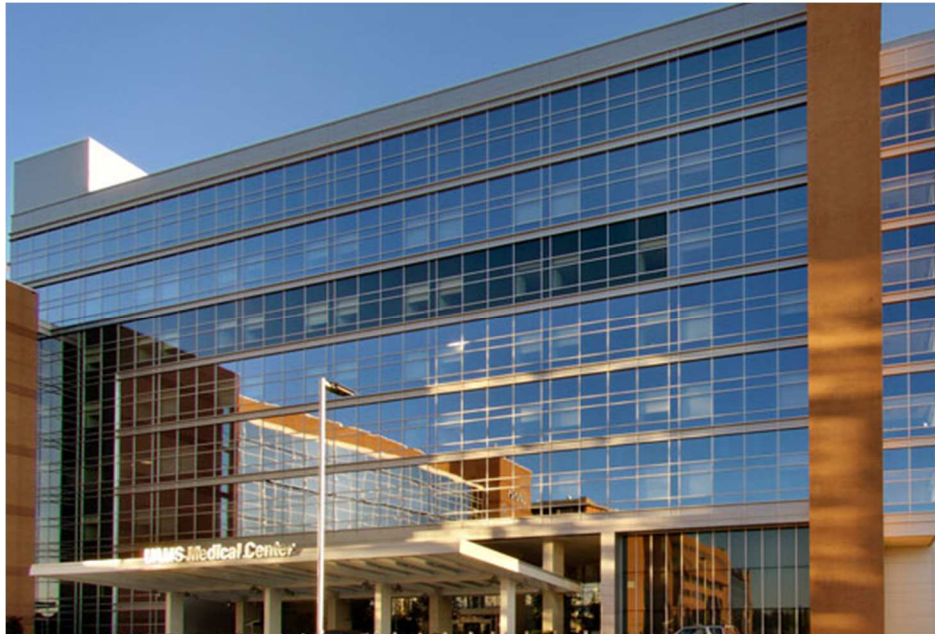




# Environmental Product Declaration EFCO Traditional Curtain Wall Systems



EFCO Curtain Wall System 5600

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 m2                          |              |         |
| Mass per m2: 42.3 kg                         |              |         |
| <b>Potential Environmental Impacts</b>       |              |         |
| Global Climate Change                        | kg CO2 eq    | 180     |
| Acidification                                | kg SO2 eq    | 1.2     |
| Eutrophication                               | kg N eq      | 0.06    |
| Ozone Depletion                              | kg CFC-11 eq | 7.7E-06 |
| Photochemical Smog Formation                 | kg O3 eq     | 10      |
| <b>Resources, Energy, &amp; Waste</b>        |              |         |
| Non-renewable Energy Resources               | MJ HHV       | 2,300   |
| Renewable Energy Resources                   | MJ HHV       | 560     |
| Non-renewable Material Resources             | kg           | 160     |
| Renewable Material Resources                 | kg           | 2.0     |
| Non-Hazardous Waste Production               | kg           | 4.8     |
| Hazardous Waste Production                   | kg           | 0       |
| Freshwater Consumption                       | liter        | 120     |
| <b>Other Declarations</b>                    |              |         |
| Recyclable content: aluminum 41%, glass 52%  |              |         |
| Hazardous materials in >0.1% of window: none |              |         |

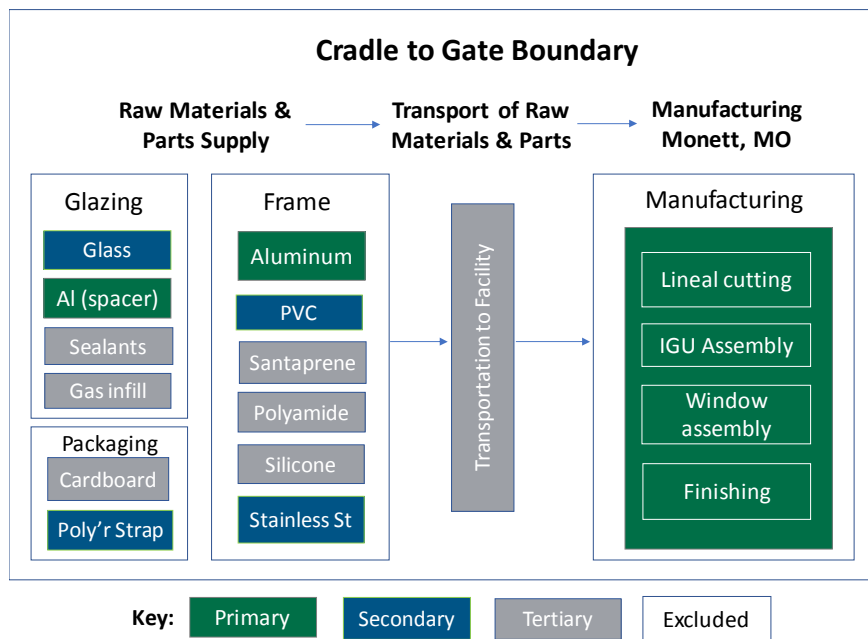
## EFCO Traditional Curtain Wall Systems



Typically assembled at the building site, a traditional stick-built curtain wall system is made up of a combination of horizontal/vertical mullions, glass, and is capable of multi-floor spans. Available in a variety of depths, profiles, and finishes, EFCO's relatively lightweight, weathertight traditional curtain wall systems provide a cutting-edge combination of design and performance, including thermal, hurricane and blast resistance.

EFCO traditional curtain wall systems include the following product lines: System 5500, System 5500 SSG; System 5600, System 5600 SSG, System 5900, System 5900 SSG.

## System Boundaries and Data



Capital equipment

Personnel impacts

Non-window components

Materials 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

| 1 m2 Traditional Curtain Wall    |              | Raw Materials Production | Transport to Plant | Manufacturing | Total           |
|----------------------------------|--------------|--------------------------|--------------------|---------------|-----------------|
| Impact Category                  | Units        |                          |                    |               |                 |
| Global Climate Change            | kg CO2 eq    | 93%                      | 1.4%               | 5.2%          | <b>180</b>      |
| Acidification                    | kg SO2 eq    | 94%                      | 1.7%               | 3.9%          | <b>1.2</b>      |
| Eutrophication                   | kg N eq      | 92%                      | 1.8%               | 6.3%          | <b>0.06</b>     |
| Ozone Depletion                  | kg CFC-11 eq | 85%                      | 0%                 | 15%           | <b>7.65E-06</b> |
| Photochemical Smog Formation     | kg O3 eq     | 91%                      | 5.2%               | 3.4%          | <b>10</b>       |
| Inventory Result                 | Units        |                          |                    |               |                 |
| Non-renewable Energy Resources   | MJ HHV       | 91%                      | 1.7%               | 7.0%          | <b>2,300</b>    |
| Renewable Energy Resources       | MJ HHV       | 99%                      | 0%                 | 0.6%          | <b>560</b>      |
| Non-renewable Material Resources | kg           | 99%                      | 0%                 | 0.5%          | <b>160</b>      |
| Renewable Material Resources     | kg           | 96%                      | 0%                 | 4.5%          | <b>2.0</b>      |
| Non-Hazardous Waste Production   | kg           | 96%                      | 0%                 | 3.8%          | <b>4.8</b>      |
| Hazardous Waste Production       | kg           | n/a                      | n/a                | n/a           | <b>0</b>        |
| Freshwater Consumption           | liter        | 84%                      | 0%                 | 16%           | <b>120</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
- ASTME331 and AAMA 501 Water Penetration
- ASTME330 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.