Environmental Product Declaration

# FrameOne™

AMERICAS

## About this product

FrameOne Bench offers diverse design options that add versatility and value for companies to optimize real estate, fuel innovation and support the ways their people work best.

The reference product is a table covering 1.16 $m^2$ meaning 0.86 units are required to meet the functional unit of 1 $m^2$ of physical floor space for a 10-year period. The bench occupies 2.33 $m^2$ of floor space.

Date of Issue: September 23, 2024
Date of Expiration: September 23, 2029

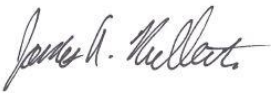
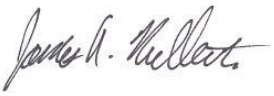
## About this document

This declaration describes the Life Cycle Assessment of the FrameOne Desk/Bench produced for the Americas market by Steelcase Inc. in the United States. The assessment is performed according to the ISO standards 14040 (2006), 14044 (2006) and 14025 (2006), and BIFMA PCR for Tables: UNCPC 3812 to generate an EPD for business-to-business communication.

## Learn more

- Explore Steelcase environmental philosophy and commitments overview.
- Find product details and sustainability certifications on product page at steelcase.com.
- See our product warranty.
- Contact epd@steelcase.com for any EPD-related questions or inquiries.

## ASSESSMENT OVERVIEW

| | |
|---|---|
| **EPD commissioner** | Steelcase® Inc |
| **Corporate Address** | 901 44th Street SE Grand Rapids, Michigan 49508-7594 United States |
| **Product group** | Tables |
| **Product name** | FrameOne™ Desk/Bench |
| **Product intended use** | Table |
| **Product reference service life** | 10 years |
| **Reference standards** | ISO 14025, ISO 14040, ISO 14044 |
| **EPD scope** | Cradle to grave |
| **EPD number** | EPD10954 |
| **Date of issuance** | September 23, 2024 |
| **Date of expiration** | September 23, 2029 |
| **EPD type** | Product specific |
| **EPD Product Coverage** | FrameOne™ Desk / Bench for the Americas market |
| **Intended audience** | Business to business (B2B) |
| **Year of reported manufacturer data** | 2023 |
| **Functional unit** | One square meter of physical floor space for a reference service life of 10 years |
| **Applicable markets/regions** | Americas |
| **LCA software and database version** | GaBi 10.6.2.9; GaBi database, 2022.2 |
| **LCIA methodology and version number** | TRACI 2.1, IPCC AR6 |
| **Program administrator** | NSF Certification LLC 789 N. Dixboro, Ann Arbor, MI 48105 www.nsf.org |
| **Reference PCR and version number** | BIFMA PCR for Tables: UNCPC 3812 (BIFMA PCR, 2022) |
| **PCR reviewer** | Review Panel Chaired by Dr. Thomas Gloria |
| **EPD reviewer** | External review conducted by:<br>  <br>Jim Mellentine, Thrive ESG<br>This declaration and its Life Cycle Assessment was independently verified in accordance with ISO standards 14040 (2006), 14044 (2006), 14025 (2006), and BIFMA PCR for Seating UNCPC 3811 (2020). |
| **LCA reviewer** | External review conducted by:<br>  <br>Jim Mellentine, Thrive ESG<br>The product Life Cycle Assessment was conducted in accordance with ISO 14044 and the reference PCR. |
| **Disclaimer** | The PCR this EPD was based on was written to determine the potential environmental impacts of a table product from cradle to grave. It was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results, due to and not limited to, the practitioner's assumptions, the source of the data used in the study, and the specifics of the product modeled. |

## ASSESSMENT PARAMETERS

### Functional unit

One square meter of physical floor space for a reference service life of 10 years. To fulfill the functional unit, 0.43 units of the bench are required and 0.86 units of the desk.

The height of this table cannot be adjusted by the user. Therefore, there is no energy required during use.

### Product scope

The product assessed is the FrameOne™ Desk/Bench (product number FMBSS3060 [single sided top], FMBDS3060 [dual sided top]) with rectangular top, cable support tray and a power bar.

One FrameOne™ Desk (FMBSS3060) is intended for use by 1 occupant.
One FrameOne™ Bench (FMBDS3060) is intended for use by 2 occupants.

Manufacturing location
Amex, Tijuana Mexico, Athens, Alabama and Grand Rapids, Michigan

### Assessment goal and scope

The potential environmental impacts of FrameOne™ Desk/Bench and its packaging throughout its entire life cycle – including raw materials extraction, production, transport, use, and end of life – were assessed. In the absence of primary information, the GaBi database was used for secondary data.

The life cycle stages included in this assessment follow the BIFMA PCR for Tables: UNCPC 3812. Material acquisition and pre-processing (including transportation), production, distribution, use and end-of-life are assessed for the table product.

## Assessment boundary

The Life Cycle Assessment considers the full life cycle of the product as described here, cradle to grave. Life cycle stages and phases included in this assessment follow the BIFMA PCR for Tables and are presented in the following table.

| | | Stage | Status |
|---|---|---|---|
|  | ***Cradle to inbound gate***<br>**MATERIALS ACQUISITION**<br>Raw material extraction, pre-processing and transportation of materials to suppliers. | **A1.** Raw material supply | ✓ |
| | | **A2.** Transport | ✓ |
|  | ***Gate to gate***<br>**PRODUCTION PROCESS**<br>Transportation of furniture components and materials from Tier 1 suppliers to Steelcase final manufacturing facility. External and internal production. | **A3.** Manufacturing | ✓ |
|  | ***Gate to grave***<br>**DISTRIBUTION, USE AND END OF LIFE**<br>Distribution of products, installation, use and end of life. | **A4.** Transport | ✓ |
| | | **A5.** Installation | ✓ |
| | | **B1.** Use | ✓ |
| | | **B2.** Maintenance/cleaning | ✓ |
| | | **B3.** Repair | ✓ |
| | | **B4.** Replacement | ✓ |
| | | **B5.** Refurbishment | ✓ |
| | | **B6.** Operational energy use | ✓ |
| | | **B7.** Operational water use | ✓ |
| | | **C1.** Disassembly | ✓ |
| | | **C2.** Transport | ✓ |
| | | **C3.** Waste processing | ✓ |
| | | **C4.** Disposal | ✓ |
| | ***Beyond the boundary*** | **D.** Reuse/recovery | ✓ |

## RESULTS

The product composition, packaging composition, recycled content, recyclability visuals, and life cycle impacts below relate specifically to one $m^2$ (0.86 units) of the FrameOne™ desk configuration listed above.

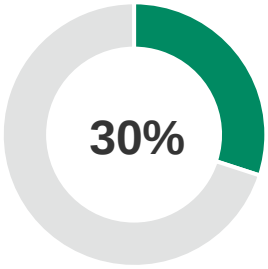
### Product composition per $m^2$

| Material | Weight (kg) | Weight (%) | Resource Type |
|---|---|---|---|
| Steel | 27.592 | 51.34% | Recycled, Virgin Non-renewable |
| Aluminum | 7.114 | 13.24% | Recycled, Virgin Non-renewable |
| Laminate | 0.001 | 0.00% | Virgin Non-renewable |
| Adhesive | 0.195 | 0.36% | Virgin Non-renewable |
| Nylon (PA6 and PA66) | 0.363 | 0.68% | Virgin Non-renewable |
| Particle Board | 18.256 | 33.97% | Recycled, Virgin and renewable |
| Polycarbonate | 0.028 | 0.05% | Virgin Non-renewable |
| Polypropylene | 0.022 | 0.04% | Virgin Non-renewable |
| ABS | 0.170 | 0.32% | Virgin Non-renewable |
| Total | 53.743 | 100% | |

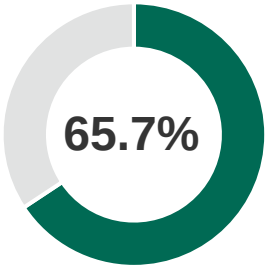
### Product packaging composition per $m^2$

| Material | Weight (kg) | Weight (%) | Resource Type |
|---|---|---|---|
| Cardboard | 5.001 | 36.25% | Renewable |
| LDPE | 0.312 | 2.26% | Non-renewable |
| Expanded Polyethylene | 0.332 | 2.40% | Non-renewable |
| Polyethylene | 0.117 | 0.85% | Non-renewable |
| Polypropylene | 0.936 | 54.28% | Non-renewable |
| Arcel | 0.117 | 0.85% | Non-renewable |
| Paper | 0.039 | 0.28% | Renewable |
| Fiberboard | 0.390 | 2.83% | Renewable |
| Total | 7.244 | 100.00% | |

### Product recycled content* and recyclability** summary




**TOTAL RECYCLED CONTENT***




**RECYCLABILITY BY WEIGHT****

*Total recycled content based on supplier's data. The source of recycled content of various materials could be either post-industrial or post-consumer based on market availability. Packaging excluded.

**Recyclability: this recyclability rate is the maximum amount of the product that is recyclable, based on the availability of recycling facilities in the specified regions and the ability of the product to be disassembled. Note that, per the requirements of the PCR, the end-of-life results presented in this EPD were calculated using the US EPA's recycling rates within the 2020 Municipal Solid Waste Report for parts that can be disassembled. Packaging excluded.

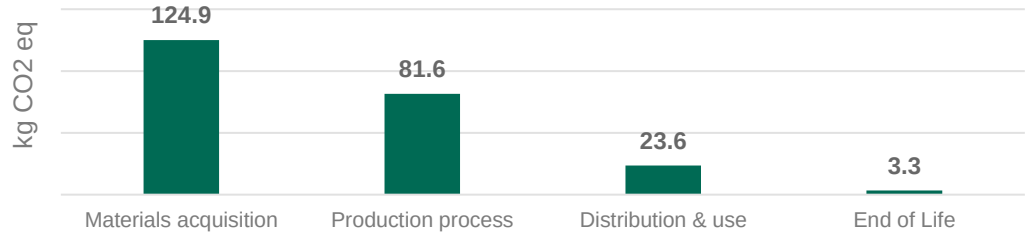
## Life cycle impact by category and stage

Environmental impacts were calculated using the GaBi software platform. Impact results according to the BIFMA PCR have been calculated using TRACI 2.1, IPCC AR6 characterization factors, and ISO 21930 LCI indicators for primary energy and water usage. Results presented in this report are for one $m^2$ (0.86 units) of a FrameOne™ Desk, maintained for 10 years. Additionally, the results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks.

| | | *Life cycle stages* | | | | |
|---|---|---|---|---|---|---|
| | *Unit* | A1–A2 **Materials acquisition** | A3 **Production process** | A4-B7 **Distribution & Use** | C1-C4 **End of life** | *Totals* |
| ***Global warming potential** (100 years) Warming of the atmosphere caused by the global release of greenhouse gases. | kg CO2 eq | 1.25E+02 | 8.16E+01 | 2.36E+01 | 3.33E+00 | 2.33E+02 |
| ***Acidification** Emissions that increase the acidity of the environment due to various chemical reactions and/or biological activity, or by natural circumstances. | kg SO2 eq | 4.93E-01 | 1.37E-01 | 1.17E-01 | 9.46E-03 | 7.57E-01 |
| ***Photochemical ozone creation (Smog)** Through various chemical reactions, which occur between nitrogen oxides (NOx) and volatile organic compounds (VOCs) in sunlight. | kg O3 eq | 6.93E+00 | 2.39E+00 | 2.51E+00 | 1.46E-01 | 1.20E+01 |
| ***Eutrophication** Enrichment of an aquatic ecosystem with nutrients (nitrates, phosphates) that accelerate biological productivity and an undesirable accumulation of algal biomass. | kg N eq | 2.12E-02 | 1.92E-02 | 9.88E-03 | 2.64E-04 | 5.05E-02 |
| ***Ozone depletion** Reduction of the stratospheric ozone layer due to anthropogenic emissions of ozone depleting substances. | kg CFC-11 eq | 5.04E-08 | 1.58E-09 | 8.42E-14 | 7.03E-12 | 5.20E-08 |
| **Primary energy demand** Energy consumption at the source. | MJ | 2.39E+03 | 2.12E+03 | 2.86E+02 | 2.38E+01 | 4.82E+03 |
| **Net freshwater usage** Freshwater used and otherwise not recoverable. | kg | 3.96E+03 | 4.44E+02 | 4.52E-02 | 9.85E+00 | 4.42E+03 |
| **Renewable primary resources used as an energy carrier (RPRe)** First use materials from renewable sources with energy content used as a fuel | MJ | 5.86E+02 | 1.37E+02 | 1.17E+01 | 3.84E-04 | 7.35E+02 |
| **Renewable primary resources used as material (RPRm)** First use materials from renewable sources with energy content used as a material | MJ | 0.00E+00 | 9.35E+01 | 0.00E+00 | 0.00E+00 | 9.35E+01 |
| **Non-renewable primary resources used as an energy carrier** First use materials from non-renewable sources with energy content used as a fuel | MJ | 1.51E+03 | 8.98E+02 | 2.55E+02 | 2.22E+01 | 2.68E+03 |
| **Non-renewable primary resources used as material** First use materials from non-renewable sources with energy content used as a material | MJ | 2.42E+01 | 3.80E+02 | 0.00E+00 | 0.00E+00 | 4.04E+02 |
| **Recovered electrical energy (EEE)** Electrical energy recovered from disposal of waste in previous systems | MJ | 0.00E+00 | 2.45E+01 | 6.96E+00 | 2.20E+00 | 3.36E+01 |
| **Recovered thermal energy (EET)** Thermal energy recovered from disposal of waste in previous systems | MJ | 0.00E+00 | 7.82E+00 | 1.10E+01 | 1.17E+00 | 2.00E+01 |

*Methods: TRACI 2.1, IPCC AR6

## Global warming potential summary




**233 kg total $CO_2$-eq footprint**

## RESULTS

The product composition, packaging composition, recycled content, recyclability visuals, and life cycle impacts below relate specifically to one $m^2$ (0.43 units) of the FrameOne™ bench configuration listed above.

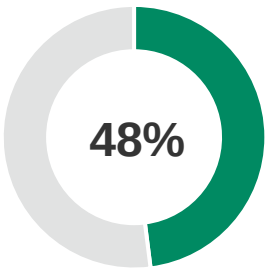
### Product composition per $m^2$

| Material | Weight (kg) | Weight (%) | Resource Type |
|---|---|---|---|
| Steel | 10.4564 | 24.63% | Recycled, Virgin Non-renewable |
| Aluminum | 3.6908 | 8.69% | Recycled, Virgin Non-renewable |
| Laminate | 0.0006 | 0.001% | Virgin Non-renewable |
| Adhesive | 0.1170 | 0.28% | Virgin Non-renewable |
| Nylon (PA6 and PA66) | 0.7005 | 1.65% | Virgin Non-renewable |
| Particle Board | 27.3843 | 64.50% | Recycled, Virgin and renewable |
| Polycarbonate | 0.0071 | 0.02% | Virgin Non-renewable |
| Polypropylene | 0.0764 | 0.18% | Virgin Non-renewable |
| ABS | 0.0200 | 0.05% | Virgin Non-renewable |
| Total | 42.4532 | 100% | |

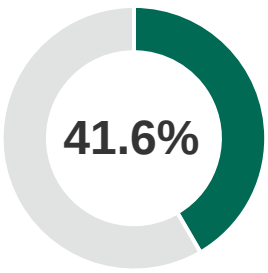
### Product packaging composition per $m^2$

| Material | Weight (kg) | Weight (%) | Resource Type |
|---|---|---|---|
| Cardboard | 3.242 | 35.69% | Renewable |
| LDPE | 0.449 | 4.94% | Non-renewable |
| Expanded Polyethylene | 0.458 | 5.05% | Non-renewable |
| Polyethylene | 0.936 | 0.64% | Non-renewable |
| Polypropylene | 0.585 | 46.38% | Non-renewable |
| Arcel | 0.059 | 0.64% | Non-renewable |
| Paper | 0.059 | 0.21% | Renewable |
| Fiberboard | 0.020 | 6.44% | Renewable |
| Total | 5.806 | 100.00% | |

### Product recycled content* and recyclability** summary




**TOTAL RECYCLED CONTENT***




**RECYCLABILITY BY WEIGHT****

*Total recycled content based on supplier's data. The source of recycled content of various materials could be either post-industrial or post-consumer based on market availability. Packaging excluded.

**Recyclability: this recyclability rate is the maximum amount of the product that is recyclable, based on the availability of recycling facilities in the specified regions and the ability of the product to be disassembled. Note that, per the requirements of the PCR, the end-of-life results presented in this EPD were calculated using the US EPA's recycling rates within the 2020 Municipal Solid Waste Report for parts that can be disassembled. Packaging excluded.

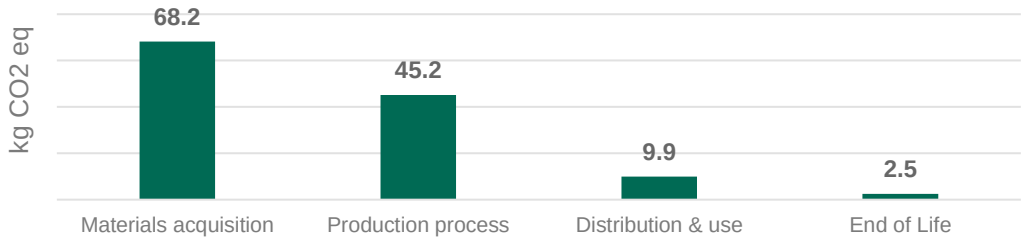
## Life cycle impact by category and stage

Environmental impacts were calculated using the GaBi software platform. Impact results according to the BIFMA PCR have been calculated using TRACI 2.1, IPCC AR6 characterization factors, and ISO 21930 LCI indicators for primary energy and water usage. Results presented in this report are for one $m^2$ (0.43 units) of a FrameOne™ bench, maintained for 10 years. Additionally, the results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks.

| | | *Life cycle stages* | | | | |
|---|---|---|---|---|---|---|
| | *Unit* | A1–A2 **Materials acquisition** | A3 **Production process** | A4-B7 **Distribution & Use** | C1-C4 **End of life** | *Totals* |
| ***Global warming potential** (100 years) Warming of the atmosphere caused by the global release of greenhouse gases. | kg CO2 eq | 6.82E+01 | 4.52E+01 | 9.93E+00 | 2.50E+00 | 1.26E+02 |
| ***Acidification** Emissions that increase the acidity of the environment due to various chemical reactions and/or biological activity, or by natural circumstances. | kg SO2 eq | 3.18E-01 | 8.71E-02 | 4.13E-02 | 4.76E-03 | 4.51E-01 |
| ***Photochemical ozone creation (Smog)** Through various chemical reactions, which occur between nitrogen oxides (NOx) and volatile organic compounds (VOCs) in sunlight. | kg O3 eq | 4.55E+00 | 1.50E+00 | 8.61E-01 | 8.17E-02 | 6.99E+00 |
| ***Eutrophication** Enrichment of an aquatic ecosystem with nutrients (nitrates, phosphates) that accelerate biological productivity and an undesirable accumulation of algal biomass. | kg N eq | 1.39E-02 | 1.26E-02 | 3.92E-03 | 1.53E-04 | 3.05E-02 |
| ***Ozone depletion** Reduction of the stratospheric ozone layer due to anthropogenic emissions of ozone depleting substances. | kg CFC-11 eq | 6.14E-08 | 2.38E-09 | 3.94E-14 | 3.16E-12 | 6.38E-08 |
| **Primary energy demand** Energy consumption at the source. | MJ | 1.45E+03 | 1.16E+03 | 9.73E+01 | 1.03E+01 | 2.72E+03 |
| **Net freshwater usage** Freshwater used and otherwise not recoverable. | kg | 1.68E+03 | 2.50E+02 | 1.95E-02 | 6.74E+00 | 1.93E+03 |
| **Renewable primary resources used as an energy carrier (RPRe)** First use materials from renewable sources with energy content used as a fuel | MJ | 5.39E+02 | 6.08E+01 | 4.53E+00 | 3.01E-02 | 6.05E+02 |
| **Renewable primary resources used as material (RPRm)** First use materials from renewable sources with energy content used as a material | MJ | 0.00E+00 | 7.34E+01 | 0.00E+00 | 0.00E+00 | 7.34E+01 |
| **Non-renewable primary resources used as an energy carrier** First use materials from non-renewable sources with energy content used as a fuel | MJ | 8.41E+02 | 4.40E+02 | 9.28E+01 | 1.03E+01 | 1.38E+03 |
| **Non-renewable primary resources used as material** First use materials from non-renewable sources with energy content used as a material | MJ | 3.67E+01 | 2.56E+02 | 0.00E+00 | 0.00E+00 | 2.93E+02 |
| **Recovered electrical energy (EEE)** Electrical energy recovered from disposal of waste in previous systems | MJ | 0.00E+00 | 2.45E+01 | 6.96E+00 | 2.20E+00 | 3.36E+01 |
| **Recovered thermal energy (EET)** Thermal energy recovered from disposal of waste in previous systems | MJ | 0.00E+00 | 7.82E+00 | 1.10E+01 | 1.17E+00 | 2.00E+01 |

*Methods: TRACI 2.1, IPCC AR6

## Global warming potential summary




**125.8 kg total $CO_2$-eq footprint**

This EPD was not written to support comparative assertions. EPDs based on different PCRs or different calculation models may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results due to and not limited to the practitioner's assumptions, the source of the data used in the study, the specifics of the product modeled, and the software tool used to conduct the study.

## ADDITIONAL ENVIRONMENTAL INFORMATION

**Indoor air:** Steelcase tables products are certified with SCS's Indoor Advantage Gold™ program, conforming to the ANSI/BIFMA Furniture Emissions Standard (M7.1/X7.1-2011 R2021) and CDPH/EHLB Standard Method (CA 01350) v1.2-2017. The certification can be found here.

**Improper disposal of product:** At the end of its useful life, manage Steelcase products correctly in accordance with all applicable regulations for effective end-of-life management, including recycling, disposal, or incineration. Improper management may result in the release of chemicals that may represent a risk to the environment and human health & safety.

## REFERENCES

Life Cycle Assessment, LCA Report for Steelcase. WAP Sustainability Consulting. November 2022. *Updated by Steelcase March 2024.*

NSF BIFMA Product Category Rule (PCR) for Tables: UNCPC 3812.

NSF Certification Policies for Environmental Product Declarations (EPD). November 1, 2022.

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

ISO 14040:2006 Environmental Management – Life Cycle Assessment – Principles and Framework, Requirements and Guidelines.

ISO 14044:2006 Environmental Management – Life cycle assessment – Requirements and Guidelines.

ISO 14044: 2006/ Amd 1:2017 Environmental Management – Life cycle assessment – Requirements and Guidelines – Amendment 1.

Steelcase®

**Visit steelcase.com**

**facebook.com/Steelcase** **twitter.com/Steelcase** **youtube.com/SteelcaseTV**

**Contact**
For further questions, please contact:
epd@steelcase.com