Environmental Product Declaration

Stride® Benching

Product Description

Stride Benching supports highly collaborative users who need dedicated spaces, as well as mobile workers who only need to touch down for part of the day. Exceptionally easy access to power and data allows people to settle in or come and go. Cantilever storage combines space division and personal storage in one functional, visually dynamic solution. And the elegantly designed open leg supports long spans, creating uninterrupted workspaces. Built-in flexibility allows the collection to adapt to your organization's evolving needs. Allsteel Stride Benching is certified Indoor Advantage™ Gold, BIFMA LEVEL® 3, *Cradle to Cradle Certified*™ Bronze and available as FSC® Certified.

Functional Unit

The functional unit is 1 m^2 of floorspace, serving the function of providing office workspace for a 10-year period. Stride benching occupies a total floorspace of 5.6 m^2, with 2.5 m^2 of worksurface, and 2.4 m^3 of storage. The reference flow for the modeling system is one complete benching system and the results are normalized to 1 m^2 of floorspace.

Manufacturer

At Allsteel, we demystify the office planning process by helping our customers align their workplace strategy with their business strategy. With an accessible team and an adaptable portfolio of systems, seating, casegoods, tables, collaborative furniture and architectural walls, we address our customers' needs for today and tomorrow.

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EPD Program Operator

SCS Global Services
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Product Category Rule

BIFMA PCR for Office Furniture Workspace Products: UNCPC 3814, August 5, 2015.

EPD Number and Period of Validity

SCS-EPD-04075
July 15, 2016 - July 14, 2021
Version: April 6, 2020

Allsteel®

Approved July 15, 2016 | Valid until July 14, 2021	
Declaration Owner:	Allsteel
Address:	2210 Second Avenue, Muscatine, Iowa 52761
Declaration Number:	SCS-EPD-04075
Declaration Validity Period:	July 15, 2016 - July 14, 2021
Version:	April 6, 2020
Program Operator:	SCS Global Services
Declaration URL Link:	https://www.scsglobalservices.com/certified-green-products-guide
LCA Practitioner:	Dr. Gerard Mansell
LCA Software:	SimaPro 8.0
Independent critical review of the LCA and data, according to ISO 14044	☑ Internal ☐ External
LCA Reviewer:	Aditi Suresh, LCA Practitioner, SCS Global Services
Independent verification of the declaration and data, according to ISO 14025 and the PCR	☐ Internal ☑ External
EPD Verifier:	Tom Gloria, PhD, Industrial Ecology Consultants
Declaration Contents:	

Disclaimers: This EPD conforms to ISO 14025, 14040 and 14044.

Scope of Results Reported: *The PCR requirements limit the scope of the LCA metrics such that the results exclude environmental and social performance benchmarks and thresholds, and exclude impacts from the depletion of natural resources, land use ecological impacts, ocean impacts related to greenhouse gas emissions, risks from hazardous wastes and impacts linked to hazardous chemical emissions.*

Accuracy of Results: *Due to PCR constraints, this EPD provides estimations of potential impacts that are inherently limited in terms of accuracy.*

Comparability: *The PCR this EPD was based on 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.*

Product Specifications

Stride Benching is a new-generation worksetting well-suited for a flexible, collaborative environment. It fosters collaboration by eliminating barriers to teamwork, supports users who spend the majority of their day away from their workspace, and can be scaled to meet the needs of a variety of workers. Stride Benching features unique storage, a range of separation options, and exceptionally easy access to power. It blends cohesively with the full Stride offering to create one beautiful, functional space.

Stride is primarily constructed with cold rolled steel, extruded aluminum, particleboard, and laminated worksurfaces. The Stride benching system passes the ANSI/BIFMA X5.5 tests, demonstrating a minimum expected lifetime of 10 years under specified conditions. This EPD is based on a bench for four occupants and the setup contains 20% Post-Consumer and 32% Pre-Consumer recycled content.

Table 1. The Allsteel Stride benching product configuration.

Allsteel Stride Benching Physical Footprints	
Physical Floor Space Area	5.6 m^2
Physical Worksurface Area	2.5 m^2
Storage Volume	2.4 m^3

Materials Composition

Table 2. Material composition of Allsteel Stride benching system. Results are shown on a mass basis, and as a percent of total.

Material Type	Amount (kg/1 m^2 floorspace)	Amount (kg/unit of workstation)	Amount (%)
Steel	13	164	61%
Particleboard	4.9	59	22%
High Pressure Laminate (HPL)	1.9	23	8.7%
Zamak	0.5	6.1	2.3%
ABS	0.44	5.4	2.0%
Fiberglass	0.44	5.4	2.0%
Aluminum	0.2	2.4	0.91%
Polyester fabric	0.5	6.1	2.3%
Eletrical Components	0.44	5.4	2.0%
High Density Fiberboard (HDF)			
Adhesive (EVA; PVA, Polyolefin, Water based)	0.44	5.4	2.0%
Backer	0.2	2.4	0.91%
Hardware	0.2	2.4	0.91%
Glass-filled Nylon 6			
Hardwood			
Plastic Generic			
Glass-filled PP			
Nylon 6,6	0.12	1.4	0.52%
Total	**22**	**269**	**100%**

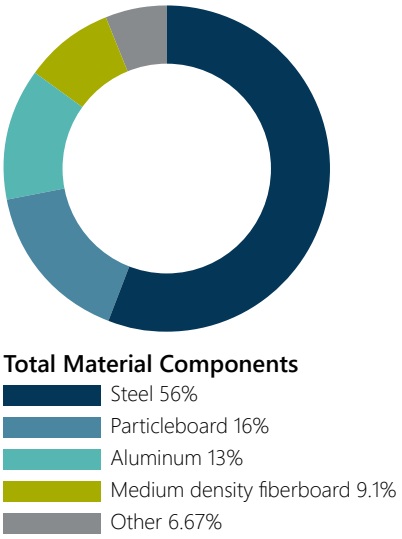


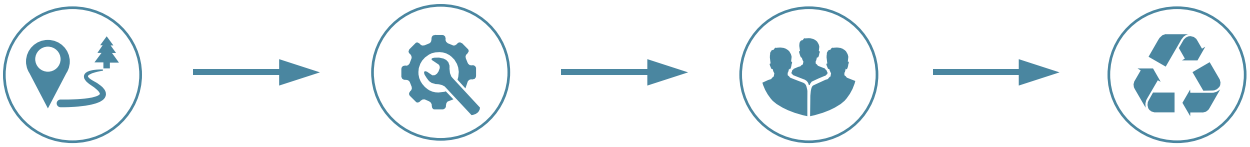
Table 3. Packaging material composition of Allsteel Stride benching system. Results are shown on a mass basis, and as a percent of total.

Packaging Material	kg/unit of workstation	% of Total
Paper/Corrugated Paperboard	90	88%
Wood Pallets	90	88%
Polyethylene film	90	88%
Expanded Polystyrene	90	88%
Adhesive	6.0	5.9%
Total Packaging	**101**	**100%**

Life Cycle Assessment Stages

Figure 1 below is a representation of the life cycle of Stride. The system boundary is cradle-to-grave and includes resource extraction and processing, product manufacture and assembly, distribution/transport, use and main-tenance, and end-of-life.

Figure 1. Life cycle diagram for Allsteel Stride benching.



Materials

This stage includes raw materials extraction and transformation, as well as transport of parts and semi-manufactured parts to the production site in Muscatine, Iowa.

Production

Some raw materials are transformed and finished. All manufactured and supplied parts are assembled. Final products are packaged for shipment.

Distribution and Usage

Transport from Muscatine to the final customer. For this study, transportation to major US markets were considered. Use, maintenance, and regular cleaning of the product. Allsteel recommends cleaning with low-impact materials and our products typically require minimal maintenance during their warranted lifetime.

End of Life

Allsteel designs its products to be easily disassembled and recycled. End of life impacts were considered, including transport to waste treatment and recycling facilities. Emissions considered include disposal of product in a landfill or from incineration.

Life Cycle Inventory

The life cycle inventory (LCI) flows for the Allsteel Stride benching system are shown in Table 4. Table 5 includes equivalency factors that were determined for the purpose of communicating critical environmental impacts in simplified terms for better understanding.

Table 4. Aggregated inventory flows and impacts for Allsteel Stride benching. Results are shown per 1 m^2 of floorspace, and 1 unit of benching system.

Parameters Prescribed by BIFMA PCR	Units	Total (per 1 m^2 floorspace)	Total (per 1unit of benching system)
Water Use	kg	3,000	16,000
Total Primary Energy Demand	MJ	6,400	35,600
Primary Energy Demand, Renewable	MJ	5,400	30,200
Primary Energy Demand, Non-renewable	MJ	1,000	5,400

Table 5. Equivalency Factors for select aggregated inventory results for Allsteel Stride benching system.

Category Indicator	Life Cycle Inventory results for 1 m^2 of floorspace of bench, maintained for 10-years	Life Cycle Inventory results for 1 benching system, maintained for 10-years	Basis of Equivalency Factor	1 m^2 of floorspace of bench, maintained for 10-years	1 benching system, maintained for 10-years
Net Water Use	3,000 kg	16,000 kg	Number of cycles run in a dishwasher	67	380
Primary Energy Demand	6,400 MJ	35,600 MJ	Number of days operating a refrigerator	340	1,900
Energy Resource Depletion (LEO-SCS-002)	2,000 MJ eq	11,200 MJ eq	Number of days of operating a refrigerator	110	600

Life Cycle Impact Assessment

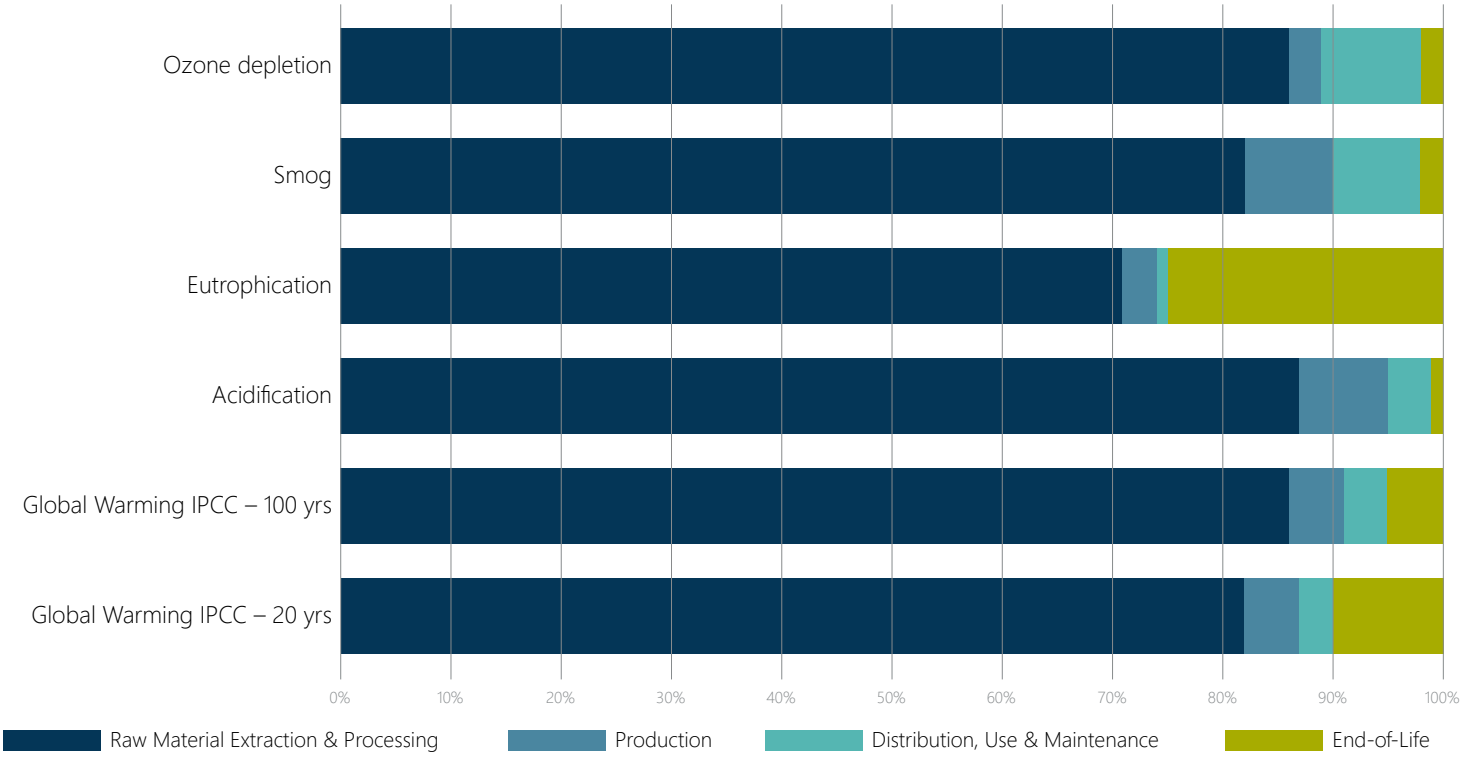
Impact category indicators are calculated using the TRACI 2.1 characterization methods, including acidification potential, eutrophication potential, smog potential, ozone depletion potential, and global warming potential based on IPCC 2013, in accordance with the BIFMA PCR. Additionally, the IPCC GWP result for a 20-year time horizon is reported following the BIFMA PCR requirements for IPCC 2013. Note, biogenic carbon uptake and biomass CO_2 emissions are not included.

Table 6. Life cycle impact assessment results for the Allsteel Stride benching system. Results are shown per 1 m^2 of floorspace. Results for 1 unit of benching system are presented in parenthesis.

Impact Category	Unit	Raw Material Extraction & Processing	Production (Manufacturing & Assembly)	Distribution, Use & Maintenance	End-of-Life	Total
IPCC Global Warming Potential – 20 year	kg CO_2 eq	360 (2,000)	21 (120)	14 (81)	45 (250)	440 (2,500)
IPCC Global Warming Potential – 100 year	kg CO_2 eq	320 (1,800)	18 (100)	13 (75)	17 (96)	370 (2,000)
Acidification Potential	kg SO_2 eq	1.4 (7.8)	0.13 (0.73)	0.064 (0.36)	$1.7x10^{-2}$ (0.10)	1.6 (8.7)
Eutrophication Potential	kg N eq	1.4 (7.7)	0.033 (0.19)	0.019 (0.11)	0.27 (1.5)	1.7 (9.6)
Smog Potential	kg O_3 eq	17 (93)	1.7 (9.7)	1.7 (9.5)	0.46 (2.6)	20 (110)
Ozone Depletion Potential	kg CFC-11 eq	$2.6x10^{-5}$ ($1.4x10^{-4}$)	$1.0x10^{-6}$ ($5.8x10^{-6}$)	$2.8x10^{-6}$ ($1.6x10^{-5}$)	$4.7x10^{-7}$ ($2.6x10^{-6}$)	$3.0x10^{-5}$ ($1.7x10^{-4}$)

Figure 2. Contribution analysis graph representing % contribution to each impact category indicator by life cycle phase.

Life Cycle Impacts of Stride Benching System



Life Cycle Impact Assessment (continued)

Additional life cycle impact results are reported in Table 7 below as optional parameters of concern. These impacts are calculated using the LEO-SCS-002 framework, which augments the specified impact categories and method TRACI 2.1, identified by the NSF PCR.

Table 7. Life cycle impact assessment results for Allsteel Stride benching according to LEO-SCS-002 draft standard (June 2014).

Impact Category (LEO SCS-002 Parameters)	Unit	Life Cycle Impact results for 1m² of floorspace	Life Cycle Impact results for 1 benching system
Global Climate Change	(kg CO_2 eq)	360	2,000
Ocean Acidification	(kg H_2CO_3 eq)	450	2,500
Energy Resource Depletion	(MJ eq)	2,000	11,200

Results for select impact category indicators are translated to the number of miles driven in a typical passenger vehicle, and are provided to help customers interpret the scale of potential environmental impact attributed to the product.

Table 8. Equivalency factors for select life cycle impact assessment results for Stride benching system.

Category Indicator	Life Cycle Impact Assessment results for 1 m² of floorspace of bench, maintained for 10-years	Life Cycle Impact Assessment results for 1 benching system, maintained for 10-years	Basis of Equivalency Factor	1 m² of floorspace of bench, maintained for 10-years	1 benching system, maintained for 10-years
Global Warming Potential (IPCC, 20 year time horizon)	320 kg CO_2 eq	1,800 kg CO_2 eq	Number of miles driven in a typical passenger vehicle	750	4,200
Global Climate Change (LEO-SCS-002)	360 kg CO_2 eq	2,000 kg CO_2 eq	Number of miles driven in a typical passenger vehicle	860	4,800

Additional Environmental Information

Allsteel makes it a priority to design products and implement processes that reduce our collective impact on the environment. Allsteel is proud to support sustainable initiatives in the building industry as a member of the U.S. Green Building Council (USGBC).

Stride Benching is LEVEL® 3 certified to the ANSI/BIFMA e3 Furniture Sustainability Standard; *Cradle to Cradle Certified*™ Bronze; SCS Indoor Advantage™ Gold certified for indoor air quality; and available as FSC® Certified. Stride has the ability to contribute to several credits in the LEED® green building program and the WELL Building Standard®.

References

1. Life Cycle Assessment of Allsteel Stride Benching. Final Report. Prepared for Allsteel an HNI Corporation company. SCS Global Services. January 2016.
2. ISO 14025: 2006 Environmental labels and declarations – Type III environmental declarations – Principles and Procedures.
3. ISO 14040: 2006 Environmental Management – Life cycle assessment – Principles and framework.
4. ISO 14044: 2006 Environmental Management – Life cycle assessment – Requirements and Guidelines.
5. Product Category Rule (PCR) Environmental Product Declarations (EPD), BIFMA PCR for Office Furniture Workspace Products: UNCPC 3814. August 5, 2015.
6. SCS Type III Environmental Declaration Program: Program Operator Manual v7.0. October 2015. SCS Global Services.
7. Leonardo Academy. Standard for Type III Life-Cycle Impact Profile Declarations for Products, Services and Systems (LEO-SCS-002), June 2014. http://www.leonardoacademy.org/programs/standards/life-cycle.html
8. BIFMA x5.5. American National Standard for Office Furnishings – Desk Products – Tests. 2014.
9. Intergovernmental Panel on Climate Change (IPCC). IPCC Fourth Assessment Report. http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html
10. Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI). Version 2.1. US Environmental Protection Agency.
11. Ecoinvent Centre (2010) ecoinvent data from v2.2 Swiss Center for Life Cycle Inventories, Dubendorf, 2010, http://www.ecoinvent.org
12. US Life-Cycle Inventory Database. National Renewable Energy Laboratory. http://www.nrel.gov/lci/US
13. Environmental Protection Agency. The Emissions & Generation Resource Integrated Database (eGRID). http://www.epa.gov/cleanenergy/energy-resources/egrid/
14. US Environmental Protection Agency. Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Tables and Figures for 2013. Retrieved on 7/25/2015 from: http://www.epa.gov/wastes/nonhaz/municipal/pubs/2013_advncng_smm_fs.pdf
15. US Environmental Protection Agency. Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI).
16. EPA Greenhouse gas equivalencies calculator (2014); http://www.epa.gov/cleanenergy/energyresources/calculator.html
17. Energy use of refrigerators: https://www.energystar.gov/index.cfm?fuseaction=refrig.calculator
18. Water use in dishwashers: https://www.energystar.gov/index.cfm?c=dishwash.pr_crit_dishwashers

Allsteel®

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Allsteel supports green initiatives in the contract furniture industry as a member of the U.S. Green Building Council. Terrace is an SCS Indoor Advantage™ Gold and LEVEL® 3 certified product.