



Environmental Product Declaration

Further™

Product Description

Further offers a systematic approach to planning, inviting you to continuously re-imagine the workplace. Using the same components, you are free to create multiple, unique solutions across the entire floorplan that can easily evolve over time to keep pace with changing business needs. Further invites you to continuously re-imagine the workplace, and move business forward with the ability to adapt at a moment's notice – simply, elegantly, and efficiently. All while supporting a broad range of users and the work they do. Allsteel Further 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 m² of floorspace, serving the function of providing office workspace for a 10-year period. Further benching occupies a total floorspace of 4.6 m², with 2.3 m² of worksurface, and 1.2 m³ of storage. The reference flow for the modeling system is one complete benching system and the results are normalized to 1 m² 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 movable walls, we address our customers' needs for today and tomorrow.

Allsteel Inc.
2210 Second Avenue
Muscatine, IA 52761
www.allsteeloffice.com

EPD Program Operator

SCS Global Services
2000 Powell Street, Ste 600
Emeryville, CA 94608
www.scsglobalservices.com

Product Category Rule

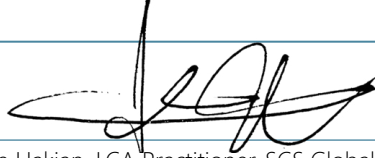

BIFMA PCR for Office Furniture Workspace Products:
UNCPC 3814, August 5, 2015.

EPD Number and Period of Validity

SCS-EPD-04146
September 7, 2016 - September 6, 2021
Version: April 6, 2020

Allsteel®

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Declaration Owner:	Allsteel Inc.
Address:	2210 Second Avenue, Muscatine, Iowa 52761
Declaration Number:	SCS-EPD-04146
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LCA Practitioner:	Aditi Suresh
LCA Software:	SimaPro 8.0
Independent critical review of the LCA and data, according to ISO 14044	<input checked="" type="checkbox"/> Internal <input type="checkbox"/> External
LCA Reviewer:	 Jeremie Hakian, LCA Practitioner, SCS Global Services
Product Category Rule:	BIFMA PCR for Office Furniture Workspace Products: UNCPC 3814, August 5, 2015.
PCR Review conducted by:	Thomas P. Gloria, Ph.D. (Chair), Industrial Ecology Consultants
Independent verification of the declaration and data, according to ISO 14025 and the PCR	<input type="checkbox"/> Internal <input checked="" type="checkbox"/> External
EPD Verifier:	 Tom Gloria, PhD, Industrial Ecology Consultants
Declaration Contents:	Product and Company Information.....1 Product Specifications.....3 Material Composition.....3 Life Cycle Assessment Stages.....4 Life Cycle Inventory.....4 Life Cycle Impact Assessment.....5 Additional Environmental Information.....6 References.....7

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

Allsteel Further makes it easy to create the individual environment you need to work both productively and comfortably, with a variety of uniquely designed components. Choices range from fixed to height-adjustable workstations, along with a variety of screen and storage options to best suit customer needs

Further, assembled at the Allsteel Muscatine, Iowa manufacturing facility, is primarily constructed of particleboard worksurfaces, extruded aluminum, and fabricated steel parts. Further passes the ANSI/BIFMA X5.5 tests, demonstrating a minimum expected lifetime of 10 years under specified conditions. This EPD is based on a workspace for two occupants. The setup contains 10% post-consumer and 65% pre-consumer recycled content.

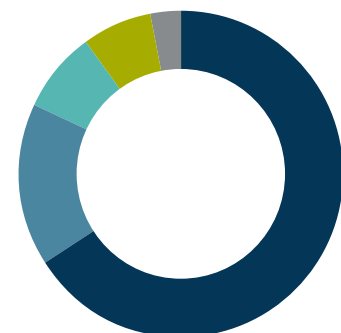
Table 1. The Allsteel Further benching product configuration.

Allsteel Further Benching Physical Footprints	
Physical Floor Space Area	4.6 m ²
Physical Worksurface Area	2.3 m ²
Storage Volume	1.2 m ³

Materials Composition

Table 2. Material composition of Allsteel Further 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 benching system)	Amount (%)
Particleboard	15	71	66%
Aluminum	3.7	17	16%
Zinc	1.8	8.18	8%
Steel	1.7	7.9	7%
Laminate	0.72	3.33	3.20%
Edgeband ABS	0.25	1.14	1.10%
Soundtech	0.25	1.17	1%
High density fiberboard	0.24	1.12	1%
Chipboard	0.18	0.84	0.78%
Nylon 6,6 30% glass-filled	0.13	0.59	0.57%
Backer	0.11	0.51	0.50%
Recycled PET fabric	0.064	0.29	0.27%
Adhesive PVA	0.06	0.28	0.27%
Nylon 6,6	0.018	0.08	0.08%
Adhesive EVA	0.003	0.001	0.01%
Total	22	103	100%



Total Material Components

Particleboard	66%
Aluminum	16%
Zinc	8%
Steel	7%
Other	3%

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

Packaging Material	kg/unit of benching system	% of Total
Hardwood Pallets	7	93%
Paper/Corrugated Paperboard	0.47	6%
Polyethylene Film	0.014	0.18%
Expanded Polystyrene	0.006	0.09%
Total Packaging	7.6	100%

Life Cycle Assessment Stages

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

Figure 1. Life cycle diagram for Allsteel Stride benching.



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 Further benching. Results are shown per 1 m² of floorspace, and 1 unit of benching system.

Parameters Prescribed by BIFMA PCR	Units	Total (per 1 m ² floorspace)	Total (per 1 unit of benching system)
Water Use	kg	1,000	4,700
Total Primary Energy Demand	MJ	1,100	4,860
Primary Energy Demand, Renewable	MJ	700	3,200
Primary Energy Demand, Non-renewable	MJ	360	1,700

Table 5. Equivalency Factors for select aggregated inventory results for Allsteel Further 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	1,000 kg	4,700 kg	Number of cycles run in a dishwasher	22	100
Primary Energy Demand	1,100 MJ	4,900 MJ	Number of days operating a refrigerator	56	260
Energy Resource Depletion (LEO-SCS-002)	300 MJ eq	1,380 MJ eq	Number of days of operating a refrigerator	16	73

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 CO₂ emissions are not included.

Table 6. Life cycle impact assessment results for the Allsteel Further benching system. Results are shown per 1 m² of floorspace. Results for 1 unit of benching system are presented in parenthesis.







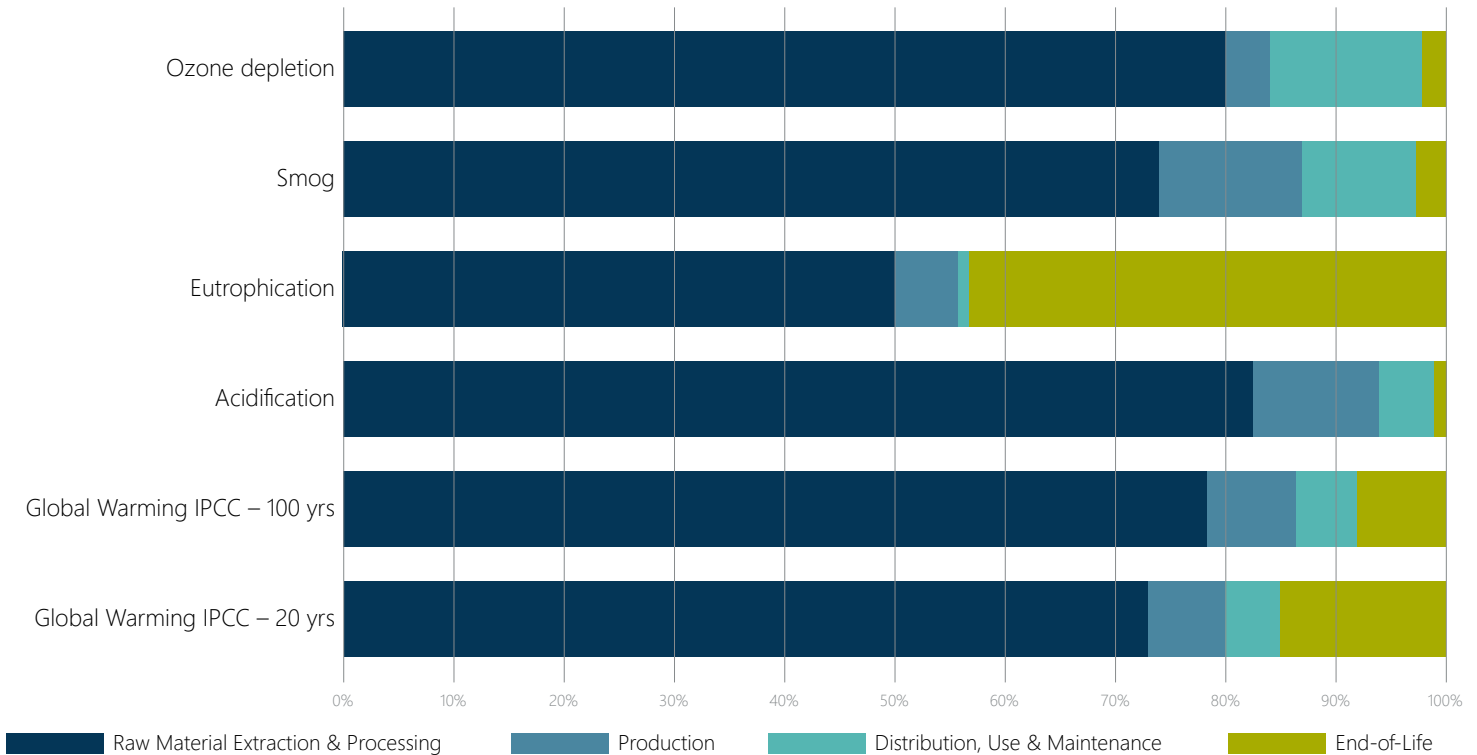
Impact Category	Unit	Raw Material Extraction & Processing	Production (Manufacturing & Assembly)	Distribution, Use & Maintenance	End-of-Life	Total
 IPCC Global Warming Potential – 20 year	kg CO ₂ eq	41 (190)	4.0 (18)	3.0 (12)	8.5 (39)	56 (260)
 IPCC Global Warming Potential – 100 year	kg CO ₂ eq	36 (160)	3.5 (16)	2.7 (12)	3.6 (17)	45 (210)
 Acidification Potential	kg CO ₂ eq	0.21 (1.1)	0.031 (0.14)	0.013 (0.059)	0.0037 (0.017)	0.26 (1.2)
 Eutrophication Potential	kg N eq	0.12 (0.57)	0.012 (0.054)	0.0034 (0.016)	0.11 (0.51)	0.25 (1.1)
 Smog Potential	kg O ₃ eq	2.3 (11)	0.40 (1.8)	0.35 (1.6)	0.100 (0.46)	3.1 (14)
 Ozone Depletion Potential	kg CFC-11 eq	3.5x10 ⁻⁶ (1.6x10 ⁻⁵)	1.7x10 ⁻⁷ (7.8x10 ⁻⁷)	5.8x10 ⁻⁷ (2.7x10 ⁻⁶)	1x10 ⁻⁷ (4.7x10 ⁻⁷)	4.4x10 ⁻⁶ (2.0x10 ⁻⁵)

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

Life Cycle Impacts of Further 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 Further benching according to LEO-SCS-002 draft standard (June 2014).

Impact Category (LEO SCS-002 Parameters)	Unit	Life Cycle Impact results for 1m ² of floorspace	Life Cycle Impact results for 1 benching system
Global Climate Change	(kg CO ₂ eq)	40	180
Arctic Climate Change	(kg CO ₂ eq)	64	295
Ocean Acidification	(kg H ₂ CO ₃ eq)	57	262
Energy Resource Depletion	(MJ eq)	300	1,380

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 Further benching system.

Category Indicator	Life Cycle Impact Assessment results for 1 m ² 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 m ² of floorspace of bench, maintained for 10-years	1 benching system, maintained for 10-years
Global Warming Potential (IPCC, 20 year time horizon)	45 kg CO ₂ eq	210 kg CO ₂ eq	Number of miles driven in a typical passenger vehicle	110	490
Global Climate Change (LEO-SCS-002)	40 kg CO ₂ eq	180 kg CO ₂ eq	Number of miles driven in a typical passenger vehicle	90	410

Additional Environmental Information

Allsteel makes it a priority to design product 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).

Further 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. Further has the ability to contribute to several credits in the LEED[®] green building program and the WELL Building Standard[®].

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Allsteel®

Allsteel Inc.
Muscatine, Iowa 52761-5257
allsteeloffice.com

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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.

