



Environmental Product Declaration

Canvas Office Landscape® Wood Storage Tower

Design Story

Canvas Office Landscape is an adaptive solution for creating human-centered workplaces. Consisting of a concise set of elements, Canvas simplifies the creation of varied settings to support the activities of individuals and groups.

Its elements combine harmoniously in many different ways, so Canvas can address the widest possible range of workplace needs. The office becomes a place people want to be, where they have the connections they need—with others and their tools—to do their best work.



Environmental Data

- 88% Recycled Content
- 3% Post Consumer
- 85% Pre Consumer
- Up to 9% Recyclability *

Life Cycle Assessment Data Per 0.25m³ of Storage Space

- 43 kg CO₂eq Global Warming
- 0.31 kg SO₂ eq Acidification
- 0.06 kg Neq Eutrophication
- 4.1 kg O₃ eq Smog
- 1500 MJ Primary Energy Demand

Environmental Certifications

- BIFMA level® 3
- GREENGUARD Certified
- GREENGUARD Gold Certified

Warranty

Backed by Herman Miller's 12-year, 24/7 warranty

Manufactured

Herman Miller Mainsite, Zeeland, MI 49464
ISO 14001/OHSAS 18001
Mainsite manufacturing facility uses 100% Renewable Electric Energy (through the purchase of Renewable Energy Certificates).

Disclaimer

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.

Company Description

Herman Miller creates inspiring designs to help people do great things at work, for learning, for wellness, at home, wherever people are. Our designs and the designers who work with us solve real problems for people and their organizations. This way of thinking about design has led us to be recognized as an innovator in furnishings, personal work accessories, and strategic services.

Our Sustainability Goals

We will be Resource Smart, Eco-inspired, and Community Driven.

Resource Smart

- Zero Waste
- Net Zero Water
- Net Zero Energy

Eco-inspired Design

- All products designed for the environment
- All products BIFMA level 3 certified
- Closed-Loop recycling of used product

Community Driven

- All employees engaged in Earthright
- All suppliers committed to being Resource Smart

LEED

Please refer to www.hermanmiller.com/ecoscorecard for detailed LEED information.

Supplier Support

At Herman Miller, we are committed to working closely with our suppliers to reduce our collective impact on the environment. We encourage our suppliers to minimize their operations' environmental impacts and require they assist us in decreasing our facilities' environmental effects.

Design for the Environment Criteria

Our commitment to corporate sustainability naturally includes minimizing the environmental impact of each of our products. Our Design for the Environment team applies environmentally sensitive design standards to both new and existing Herman Miller products, and goes beyond regulatory compliance to thoroughly evaluate new product designs in key areas:

• Material Chemistry and Safety of Inputs

What chemicals are in the materials we specify, and are they the safest available?

• Disassembly

Can we take products apart at the end of their useful life, to recycle their materials?

• Recyclability

Do the materials contain recycled content, and more importantly, can the materials be recycled at the end of the product's useful life?

• Life Cycle Assessment (LCA)

Have we optimized the product based on the entire life cycle?

Canvas Office Landscape Wood Storage Tower

MATERIAL DECLARATION

Functional Unit

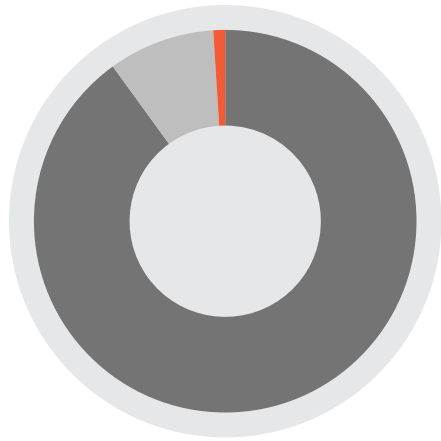
0.25m³ of storage space, maintained over a 10-year period, including packaging materials used for the final assembled product.

Reference Flow and Product Description

One Canvas Office Landscape Wood Storage Tower containing 0.29m³ of storage space (product number FF50M624242CLL3LCLCLCLKC) 24" wide x 24" deep and 42" high, 3/8" top, Box/Box/File, no counter weight—intended for use in North America—was modeled for this EPD. This final results were normalized to the 0.25m³ storage space.

Content Declaration

The chart to the right details the materials included in the product.



Total Material Components

- Wood 90%
- Steel 9%
- Plastic 1%

Material	Mass (kg)** per functional unit	Mass (%)	Resource
Adhesive	0.00	0.00%	Virgin, Non-renewable
Corrugate	0.12	0.12%	Renewable Resource, Recycled Content
Foam	0.02	0.02%	Virgin, Non-renewable
PA6 (Nylon 6)	0.34	0.32%	Virgin, Non-renewable
Particleboard	97.2	90.4%	Renewable Resource, Recycled Content
PP(Polypropylene)	0.31	0.28%	Virgin Non-renewable
Steel	9.28	8.63%	Partial Recycled Content
Zinc	0.21	0.20%	Partial Recycled Content
Total	107	100%	

Packaging*

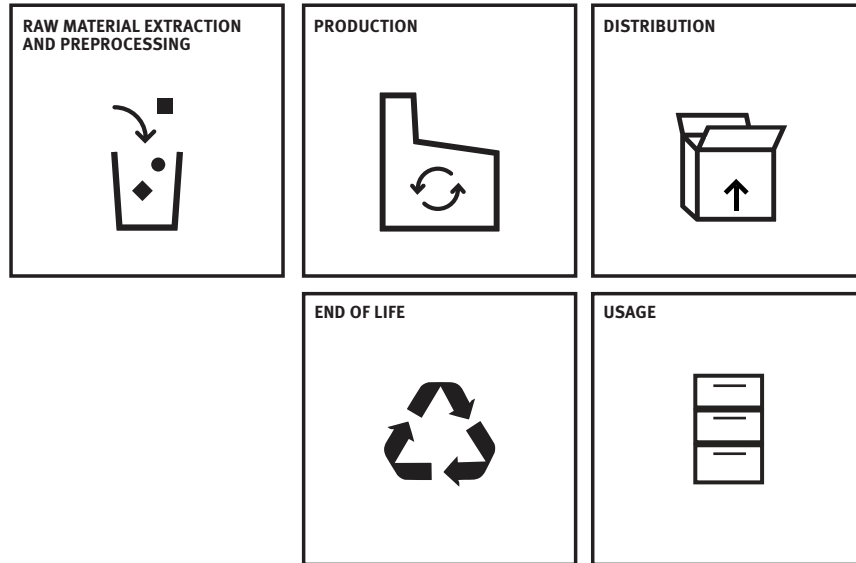
Corrugate	35.9	94.6%	Renewable Resource, Recycled Content
PE Film (Polyethylene)	0.20	5.40%	Virgin, Non-renewable
Total	3.80	100%	

*Returnable/reusable shipping blankets also available.

**Mass has been calculated per functional unit. Storage space of 0.29m³ is contained in one Canvas Wood Tower and thus weights and impacts have been multiplied by 0.85 to meet functional unit requirements.

Canvas Office Landscape Wood Storage Tower

LIFE CYCLE ASSESSMENT



ENVIRONMENTAL PRODUCT DECLARATION SYSTEM BOUNDARIES

Cradle to grave, including transportation.

Product

This EPD covers the Canvas Office Landscape Wood Storage Tower 24" wide x 24" deep and 42" high, 3/8" top, Box/Box/File, no counter weight produced for use in North America at Herman Miller's Mainsite plant in Zeeland, Michigan. The EPD applies to the listed product and to the 24" wide x 24" deep and 42" high, 3/8" top, Box/Box/ File, no counter weight tower configuration. All other tower configurations are not included in this EPD.

Raw Material Extraction and Preprocessing

The raw materials stage covers the extraction and production of the raw materials needed to manufacture the product. It includes the processing of the extracted raw material to the point where it can be made into a recognizable part, as well as transportation of the finished raw material to the part production factory.

Production

Materials are converted into parts and assemblies and made into the final product. This stage, often referred to as Gate to Gate, includes packaging of the final product and transport of parts and assemblies to the place of final product assembly and packaging.

Distribution

Transport of the product to the final customer, including retail and warehousing. Herman Miller products generally ship directly from the manufacturing plant to the final customer and are not sent to retail or warehousing.

Usage





Use, maintenance, and regular cleaning of the product. Herman Miller products are generally cleaned with a dry or damp rag and do not typically require maintenance during their warranted lifetime.

End of Life

End of life treatment of the product including landfill, recycling, waste-to-energy process, and transportation to the place of final disposal or recycling. We design our products to be easily disassembled and recycled; however, in this study, our product was modeled using the national average recycling values. As a result, more of our materials were modeled as going to the landfill than should occur in actual practice. Herman Miller also offers programs to help our customers find homes for their furniture and materials at end of life.





Canvas Office Landscape Wood Storage Tower

Life Cycle Environmental Impacts

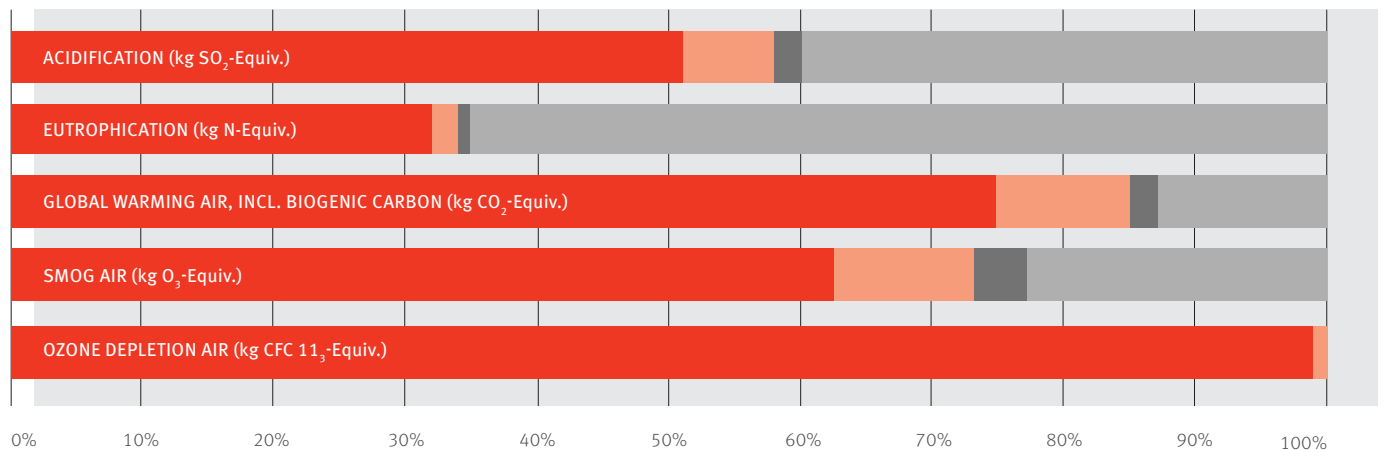
	Impact Category	Unit	Total/functional unit	Methodology
	<p>Acidification Potential</p> <p>Atmospheric deposition of substances that can cause a change of acidity in the soil. Changes in levels of acidity can cause a shift of species to occur.</p>	kg SO ₂ -eq	0.31	TRACI 2.1 as based on ASTRAP (Shannon 1991, 1992)
	<p>Eutrophication Water</p> <p>Nutrient enrichment of the aquatic environment that impacts its ecological quality of water.</p>	kg nitrogen-eq	0.06	TRACI 2.1 as characterized by the Redfield Ratio Model (1963)
	<p>Global Warming Potential (100 Years)</p> <p>A measure of the potential of emitted gasses to cause an increase in the radiative forcing potential of the atmosphere leading to climate change.</p>	kg CO ₂ -eq	43	TRACI 2.1 as characterized by IPCC 2001, 2007
	<p>Photochemical Ozone Creation Potential (Smog)</p> <p>Air pollution derived from man-made emissions to the atmosphere that can potentially cause ground level ozone.</p>	kg O ₃ -eq	4.1	TRACI 2.1 as based on Carter, W.SAPRC Atmospheric Chemical Mechanisms and VOC reactivity scale (2010)

Canvas Office Landscape Wood Storage Tower

Detailed Life Cycle Impact Assessment Per 0.25m³ of Storage Space

	LCIA Results	Unit	Total	Raw Material Production	Product Production	Distribution and Retail	End of Life
	Acidification Potential	kg SO ₂ -eq	3.1x10 ⁻¹	1.6x10 ⁻¹	2.1x10 ⁻²	4.9x10 ⁻³	1.3x10 ⁻¹
	Eutrophication Water	kg nitrogen-eq	6.3x10 ⁻²	2.0x10 ⁻²	1.4x10 ⁻³	4.6x10 ⁻⁴	4.1x10 ⁻²
	Global Warming Potential	kg CO ₂ -eq	4.3x10 ¹	-8.7x10 ¹	4.2x10 ⁰	1.1x10 ⁰	1.2x10 ²
	Photochemical Ozone Creation Potential (Smog)	kg O ₃ -eq	4.1x10 ⁰	2.4x10 ⁰	5.6x10 ⁻¹	1.6x10 ⁻¹	9.7x10 ⁻¹

Life Cycle Impacts of Canvas Wood Tower



Detailed Life Cycle Assessment

- Raw Material Production
- Product Production
- Distribution and Retail
- End of Life

Canvas Office Landscape Wood Storage Tower

Detailed Life Cycle Inventory per 0.25m³ of Storage Space

LCI Results	Unit	Total	Raw Material Production	Product Production	Distribution and Retail	End of Life
Energy Demand						
Primary Energy	MJ	1.5x10 ³	1.3x10 ³	1.2x10 ²	1.6x10 ¹	1.0x10 ²
Fossil Fuel Energy	MJ	7.8x10 ²	5.9x10 ²	7.2x10 ¹	1.5x10 ¹	9.6x10 ¹
Nuclear Energy	MJ	2.2x10 ¹	1.8x10 ¹	2.2x10 ⁻¹	6.4x10 ⁻²	3.6x10 ⁰
Renewable Energy	MJ	9.3x10 ¹	2.9x10 ¹	5.8x10 ¹	2.3x10 ⁻¹	5.0x10 ⁰
Waste						
Waste to Landfill	kg	7.9x10 ¹	0	0	0	7.9x10 ¹
Waste to Incinerator (energy recovery)	kg	0	0	0	0	0
Waste to Incinerator (without energy recovery)	kg	0	0	0	0	0
Waste to Recycling	kg	4.9x10 ⁰	0	9.1x10 ⁻²	0	4.9x10 ⁰
Hazardous Waste	kg	6.1x10 ⁻³	4.5x10 ⁻³	1.1x10 ⁻⁴	2.7x10 ⁻⁵	1.4x10 ⁻³
Other						
Fresh Water Use	kg	7.2x10 ⁴	3.5x10 ³	6.6x10 ⁴	4.6x10 ¹	2.7x10 ³
Emission to Air						
Sulfur Oxides (SO _x)	kg	7.2x10 ⁻²	5.6x10 ⁻²	3.8x10 ⁻³	5.2x10 ⁻⁴	1.0x10 ⁻²
Nitrogen Oxides (NO _x)	kg	1.6x10 ⁻¹	9.6x10 ⁻²	5.5x10 ⁻²	6.2x10 ⁻³	3.8x10 ⁻²
Carbon Dioxide (CO ₂)	kg	7.5x10 ¹	3.7x10 ¹	5.1x10 ⁰	1.1x10 ⁰	3.2x10 ¹
Methane (CH ₄)	kg	1.4x10 ⁻¹	1.0x10 ⁻¹	4.9x10 ⁻³	1.2x10 ⁻³	2.9x10 ⁻²
Nitrous Oxide (N ₂ O)	kg	3.4x10 ⁻³	2.9x10 ⁻³	1.1x10 ⁻⁴	1.1x10 ⁻⁵	3.4x10 ⁻⁴
Carbon Monoxide (CO)	kg	4.3x10 ⁻¹	2.2x10 ⁻¹	2.5x10 ⁻²	1.9x10 ⁻³	1.8x10 ⁻¹
Emission to Water						
Phosphates	kg	1.2x10 ⁻³	1.1x10 ⁻³	2.3x10 ⁻⁵	2.2x10 ⁻⁵	3.5x10 ⁻⁵
Nitrates	kg	1.6x10 ⁻³	4.7x10 ⁻⁴	2.7x10 ⁻⁴	1.2x10 ⁻⁴	7.5x10 ⁻⁴
Dioxin	kg	6.3x10 ⁻¹⁵	6.3x10 ⁻¹⁵	6.8x10 ⁻²²	5.0x10 ⁻²²	4.0x10 ⁻²¹
Heavy Metals	kg	4.0x10 ⁻³	3.2x10 ⁻³	2.8x10 ⁻⁴	2.9x10 ⁻⁵	5.3x10 ⁻⁴

Canvas Office Landscape Wood Storage Tower

EPD and LCA Creation and Verification

The EPD and LCA were created by Herman Miller's Design for the Environment Team.

References

BIFMA PCR for Storage: UNCPC 3812

Valid through June 10, 2018.

LCA for Canvas Office Landscape Wood Storage, April 2015

ISO 14025:2006 Environmental labels and Declaration - Type III Environmental Declaration - Principles and Procedures.

PCR REVIEW:

Herman Miller, Inc.

Reference PCR: Product Category Rule for Environmental Product Declaration BIFMA PCR for Storage. Valid through June 10, 2018.

PCR Review was conducted by: NSF International by an LCA expert panel chaired by Tom Gloria, Industrial Ecology Consultants. Email ncss@nsf.org for any PCR questions.

This EPD is based on the April, 2015 LCA for Canvas Wood Tower. The LCA was independently verified in accordance with ISO 14044 and the PCR by an external reviewer.

This Declaration was independently verified in accordance with ISO 14025 and the PCR.

Internal

External

Rita Schenck

Name



Signature

Rita Schenck

Name



Signature

January, 2016

EPD Approval Date

January, 2021

EPD valid through this date.

Program Operator (Earthsure) iere.org/programs/earthsure/



Manufacturer's contact information

<http://www.hermanmiller.com/contact.html>



GREENGUARD Certified

Products are certified to GREENGUARD standards for low chemical emissions into indoor air during product usage. For more information visit ul.com/gg.



level® Certified

The level conformance mark ensures a comprehensive, independent, and impartial assessment of the environmental and social impacts of a product.