



## CT Shaftwall Stud



### OEG Building Materials Inc.

## ENVIRONMENTAL PRODUCT DECLARATION

ISO 14025:2006 and ISO 21930:2017



ASTM INTERNATIONAL

Manugypse is pleased to present this Environmental Product Declaration (EPD) for CT Shaftwall Stud manufactured by OEG Building Materials Inc. This EPD was developed in compliance with ISO 14025 and ISO 21930 and has been verified by Lindita Bushi, Ph.D., Athena Sustainable Materials Institute.

The LCA and the EPD were prepared by Vertima Inc. The EPD includes cradle-to-gate life cycle assessment (LCA) results.

For more information about OEG Building Materials Inc., visit [www.oegusa.com](http://www.oegusa.com).

For any explanatory material regarding this EPD, please contact the program operator.

*Note that this EPD is commissioned and published by Manugypse in full agreement with the product manufacturer, OEG Building Materials Inc. OEG Materials Inc. is liable for the underlying information and evidence.*

# 1. GENERAL INFORMATION

PCR GENERAL INFORMATION			
<b>Reference PCR</b>	PCR Part B: Designated Steel Construction Product EPD Requirements UL Environment, v.2.0 (UL 10010-34) August 26, 2020, to August 25, 2025 (validity period)		
<b>The PCR review was conducted by:</b>	<i>Thomas Gloria, Ph.D. (chair)</i> Industrial Ecology Consultants <a href="mailto:t.gloria@industrial-ecology.com">t.gloria@industrial-ecology.com</a>	<i>Brandie Sebastian</i> JBE Consultants	<i>James Littlefield</i> Independent Consultant
EPD GENERAL INFORMATION			
<b>Program Operator</b>	ASTM International 100 Barr Harbor Drive, West Conshohocken, PA 19428 <a href="http://www.astm.org">www.astm.org</a>		
<b>Declared Product</b>	CT Shaftwall Stud		
<b>EPD Registration Number</b> EPD 671	<b>EPD Date of Issue</b> May 6, 2024	<b>EPD Period of Validity</b> May 6, 2024 to May 5, 2029	
<b>EPD Recipient Organization</b>	OEG Building Materials Inc. 6001 Bordentown Ave Sayreville, NJ 08872 United States <a href="http://www.oegusa.com">www.oegusa.com</a>		
<b>LCA and EPD commissioner</b>	Manugypse 5385 Rideau Street Quebec, QC G2E 5V9 <a href="http://www.manugypse.com">www.manugypse.com</a>		
<b>EPD Type/Scope and Declared Unit</b> Product-specific cradle-to-gate EPD with declared unit of one metric ton of steel construction product.		<b>Year of Reported Manufacturer Primary Data</b> 2022	
<b>Geographical Scope</b> North America	<b>LCA Software</b> Open LCA v.2.0.3	<b>LCI Databases</b> Ecoinvent 3.9.1 and US LCI	<b>LCIA Methodology</b> TRACI 2.1 and CED LHV v1.0
This LCA and EPD were prepared by:		Chantal Lavigne, M.A.Sc Vertima Inc. <a href="http://www.vertima.ca">www.vertima.ca</a>	
This EPD and LCA were independently verified in accordance with ISO 14025:2006, ISO 14040:2006, ISO 14044:2006 and ISO 21930:2017, as well as the UL Environment PCR Part B: Designated Steel Construction Product EPD Requirements, v.2.0 (UL 10010-34), for which the core PCR is UL Environment PCR Part A: Life Cycle Assessment Calculation Rules and Report Requirements. v.4.0 (UL-10010). <input type="checkbox"/> Internal <input checked="" type="checkbox"/> External		<i>Lindita Bushi</i> <hr/> Lindita Bushi, Ph.D. Athena Sustainable Materials Institute	



## LIMITATIONS

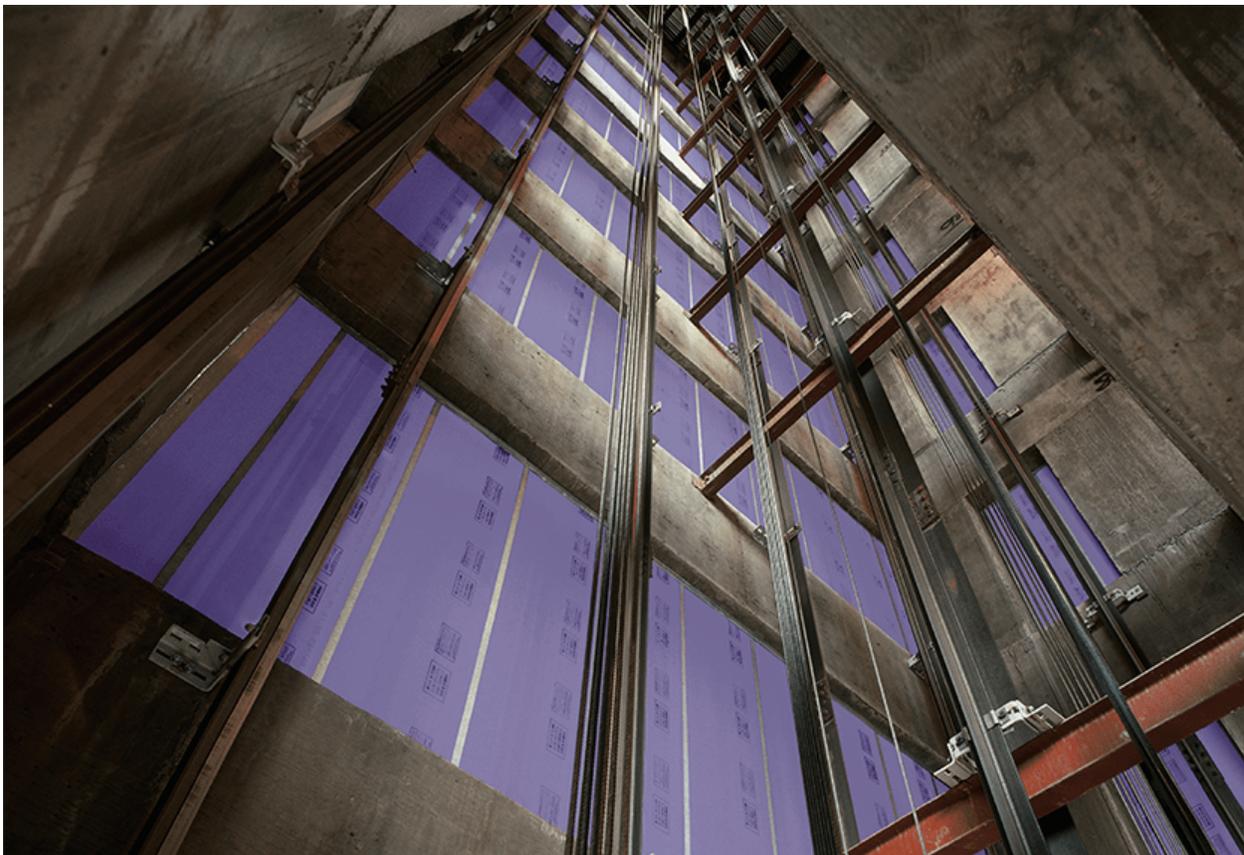
Environmental declarations from different programs based upon differing PCRs may not be comparable.[1]

Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building has been specified. [2]

When comparing EPDs that include Module D, the calculation method(s) used to determine impacts and benefits must be identical. [2]

Comparisons may be made between product-specific or industry average EPDs at the time of product purchase when product performance and specifications have been established and serve as a functional unit for comparison. [2]

The environmental impact results of steel products in this document are based on a declared unit and therefore do not provide sufficient information to establish comparisons. The results shall not be used for comparisons without knowledge of how the physical properties of the steel product impact the precise function at the construction level. The environmental impact results shall be converted to a functional unit basis before any comparison is attempted.[2]



[Courtesy of OEG Building Materials Inc.]





## 2. PRODUCT SYSTEM DESCRIPTION

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Manugypse is an industry leader in interior systems materials. As distributors and manufacturers operating out of Quebec City, Boucherville and Mirabel, they serve customers in the Greater Montreal and Quebec City/Chaudière-Appalaches markets. Amongst others, they distribute CT Shaftwall Stud manufactured by OEG Building Materials Inc. in Sayreville (New Jersey).

### 2.1. PRODUCT DESCRIPTION

CT Shaftwall Stud<sup>1</sup> is a rigid member engineered to maintain shaftwall integrity and is used with 1" thick gypsum shaft-liner panels. Gypsum shaft-liners can be easily aligned in the flanges of the CT Stud.

The product is made of galvanized steel that meets or exceeds ASTM A653 and ASTM A1003.

The figure below provides illustrations of the CT Shaftwall Stud.



CT Shaftwall Stud [courtesy of OEG Building Materials Inc.].

### 2.2. PRODUCTION AVERAGE

No production average is used. All products are produced at one facility based in Sayreville (New Jersey).

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<sup>1</sup> CT Shaftwall Stud is classified under the Product Construction Specification Institute (CSI) MasterFormat code 09 22 16.13. Non-Structural Metal Stud Framing.



### 2.3. PRODUCT APPLICATION

OEG Building Materials Inc.’s CT Shaftwall Stud can be used in both residential and commercial applications. They are used to maintain shaftwall integrity and are used with 1" thick gypsum shaft-liner panels from various manufactures.

### 2.4. TECHNICAL DATA

The CT Shaftwall Stud product is made from grade 50 G60 galvanized steel that meets or exceeds ASTM A653 and ASTM A1003.

### 2.5. PROPERTIES OF DECLARED PRODUCT AS DELIVERED

Products are available in the following gauges: 25 (18 mils), 20 structural (33 mils) and 18 (43 mils).

Available products widths are: 2-1/2", 4" and 6".

### 2.6. MATERIAL COMPOSITION

The CT Shaftwall Stud is made of 100% galvanized steel.

For more details on material content, please refer to the health product declaration (HPD) available at <http://www.hpd-collaborative.org/hpd-public-repository/>.

### 2.7. MANUFACTURING

The CT Shaftwall Stud product is manufactured by rolling galvanized steel coils on roll forming machines.

### 2.8. PACKAGING

CT Shaftwall Stud products are piled and bound together with a steel strap. To protect the product from being damaged by the strap, cut-to-size dimensional lumber is inserted between the strap and the CT Shaftwall Stud pile. The quantity of packaging materials is presented in the table below.

Packaging materials	CT Shaftwall Stud	Unit
	per 1 MT	
Dimensional lumber	1.31E+01	kg
Steel straps	2.80E+00	kg

### 2.9. TRANSPORTATION

Transportation to the installation site is not accounted for in this study as the system boundaries only include modules A1 to A3, and excludes module A4.





### 3. LCA CALCULATION RULES

#### 3.1. DECLARED UNIT

The declared unit (DU) for this study is **one metric ton (MT) of steel construction product**. In this study, the steel construction product is the CT Shaftwall Stud distributed by Manugypse.

#### 3.2. SYSTEM BOUNDARIES

The system boundaries are **cradle-to-gate**, i.e., only cover the production life cycle stage as illustrated in the table below. Within this life cycle stage, three (3) modules are considered, namely A1) Extraction and Upstream Production, A2) Transport to Factory and A3) Manufacturing. Construction (A4; A5), Use (B1 to B7) and End-of-Life (C1 to C4) stages are not included in this study. The process flow diagram figure for the OEG Building Materials CT Shaftwall Stud product distributed by Manugypse is presented on the next page. Neither green power nor CO<sub>2</sub> credits are used in the framework of this project. An attributional LCA approach is used.

System boundary life cycle stages and related information modules															
PRODUCTION STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END-OF-LIFE STAGE			
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
Extraction and Upstream Production	Transport to Factory	Manufacturing	Transport to site	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction / Demolition	Transport to Waste Processing or Disposal	Waste Processing	Disposal of Waste
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Key: X = included; MND = module not declared (excluded)

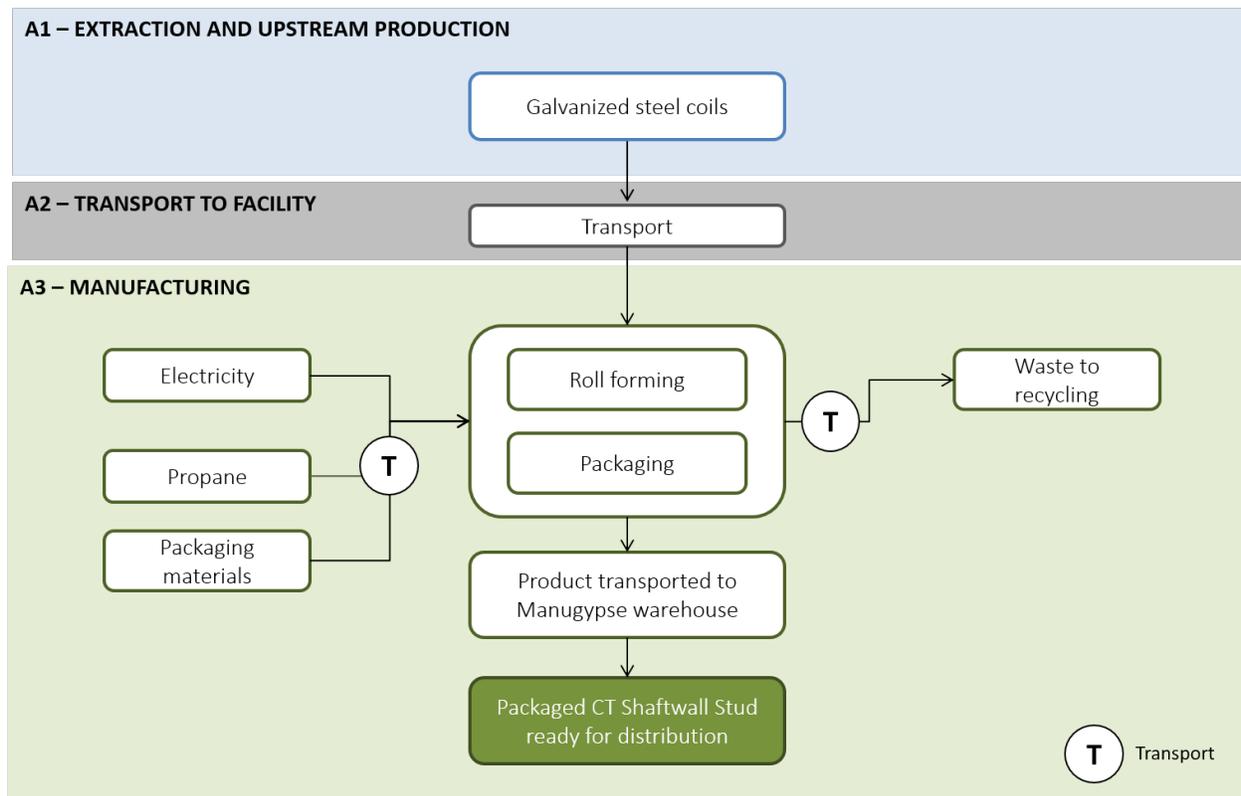
**Extraction and upstream production:** This module includes the extraction and processing of the raw materials needed to manufacture the CT Shaftwall Stud.

**Transport to facility:** This module includes the transportation of raw materials from the suppliers to the OEG Building Materials Inc. facility located in Sayreville (New Jersey).

**Manufacturing:** This module includes energy consumption used in the manufacturing processes, heating of the building, as well as the use of forklift on site. Transport of waste to the waste treatment facility is also included, as is the transport of the CT Shaftwall Stud to Manugypse’s warehouse.

Finally, packaging materials to make products ready for shipment, as well as their transport to OEG Building Materials Inc.’s facility, are covered by this stage.





**Cradle-to-gate system boundaries of CT Shaftwall Stud manufactured by OEG Building Materials and distributed by Manugypse. “T” refers to transport.**

### 3.3. CUT-OFF CRITERIA

According to the UL Environment PCR,[2] all known mass and energy flows shall be reported. No known flows should be deliberately excluded.

In this study, no known mass nor energy flows were excluded from the system boundaries.

For this study, no data on the construction, maintenance or dismantling of the capital assets, daily transport of the employees, office work, business trips and other activities from OEG Building Materials Inc.’s employees were included in the model. The model only takes into account the processes associated with infrastructure that are already included in the ecoinvent unit processes.

### 3.4. ALLOCATION

ISO 14040 allocation procedure states that whenever possible, allocation should be avoided by collecting data related to the process under study or by expanding the product system.

According to ISO 14040, step 2 consists of partitioning the inputs and outputs between the different products in a way that reflects the physical relationship between them. UL Environment’s PCR suggests using mass to allocate flows.[2]

Energy consumption and packaging were allocated to the products on a **mass basis**.





### 3.5. DATA SOURCES AND QUALITY REQUIREMENTS

Data Quality Parameter	Data Quality Discussion
Source of manufacturing data	Manufacturing data was collected from the manufacturing plant located in Sayreville (New Jersey) for the 2022 production year. This data represents 100% of product production and included: the total annual mass of products produced at the manufacturing plant; energy entering the product production process; transport distance of materials; electricity consumption; material loss; and packaging.
Source of secondary data	Background data were taken from ecoinvent 3.9.1 “cut-off” datasets and a published product-specific type III EPD for the galvanized steel production. Datasets were selected based on their representativeness of the products’ composing materials. When appropriate, the dataset’s grid mix was changed for the grid mix of the province or country where production takes places. Otherwise, ecoinvent data representative of the global market or “rest-of-the-world” were selected as proxies. Wood and transport data were taken from the US LCI Database, which is specific to a North American context.
Geographical representativeness	The OEG Building Materials Inc. manufacturing facility is based in the state of New Jersey; hence electricity consumption is based on the US-RFC grid mix. Geographical correlation of the material supply and the selected datasets are largely representative of the same area. When this was not possible, datasets representing a larger geographical area were used.
Temporal representativeness	Primary data was collected so as to be representative the 2022 production year. Datasets selected from ecoinvent and US LCI were not always published within the last ten years. Nevertheless, ecoinvent and US LCI remain reference LCI databases.
Technological representativeness	Primary data, obtained from the manufacturer, is representative of the current technologies and materials used by this company.
Completeness	All relevant process steps were considered and modelled to satisfy the goal and scope. No known flows were cut off.



## 4. LIFE CYCLE ASSESSMENT RESULTS

### 4.1. RESULTS TABLES

LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

The six impact categories presented are globally deemed mature enough to be included in Type III environmental declarations. Other categories are being developed and defined and LCA should continue making advances in their development. However, the EPD users shall not use additional measures for comparative purposes.

Comparisons cannot be made between product-specific or industry average EPDs at the design stage of a project, before a building has been specified. Comparisons may be made between product-specific or industry average EPDs at the time of product purchase when product performance and specifications have been established and serve as a functional unit for comparison. Environmental impact results shall be converted to a functional unit basis before any comparison is attempted.

Any comparison of EPDs shall be subject to the requirements of ISO 21930. EPDs are not comparative assertions and are either not comparable or have limited comparability when they have different system boundaries, are based on different product category rules or are missing relevant environmental impacts. Such comparisons can be inaccurate, and could lead to an erroneous selection of materials or products which are higher-impact, at least in some impact categories.

Environmental Indicator	Unit	CT Shaftwall Stud manufactured by OEG Building Materials and distributed by Manugypse*			
		A1	A2	A3	A1 - A3
		(per MT)	(per MT)	(per MT)	(per MT)
<b>TRACI 2.1</b>					
GWP <sub>100</sub> -AR5 <sup>(1)</sup>	kg CO <sub>2</sub> eq.	2.84E+03	2.15E+02	3.41E+02	3.39E+03
GWP <sub>100</sub> -AR4 <sup>(2)</sup>	kg CO <sub>2</sub> eq.	2.84E+03	2.15E+02	3.40E+02	3.39E+03
AP	kg SO <sub>2</sub> eq.	5.72E+00	1.73E+00	2.63E+00	1.01E+01
EP	kg N eq.	3.75E+00	1.24E-01	2.33E-01	4.10E+00
ODP	kg CFC-11 eq.	3.36E-05	4.68E-07	9.33E-07	3.50E-05
SFP	kg O <sub>3</sub> eq.	9.57E+01	4.83E+01	7.20E+01	2.16E+02
FFD	MJ Surplus	2.70E+03	2.68E+02	4.18E+02	3.38E+03
<b>GWP:</b> Global Warming Potential; <b>AP:</b> Acidification Potential; <b>EP:</b> Eutrophication Potential ; <b>ODP:</b> Ozone Layer Depletion Potential; <b>SFP:</b> Smog Formation Potential; <b>FFD:</b> Fossil Fuel Depletion Potential.					

(1) GWP 100, excludes biogenic CO<sub>2</sub> removals and emissions associated with biobased products and packaging; 100-year time horizon GWP factors are provided by the IPCC 2013 Fifth Assessment Report (AR5).

(2): GWP 100, excludes biogenic CO<sub>2</sub> removals and emissions associated with biobased products and packaging; 100-year time horizon GWP factors are provided by the IPCC 2007 Fourth Assessment Report (AR4).

\* Note that distribution of products (module A4) is not included as per the PCR.





Environmental Indicator	Unit	CT Shaftwall Stud manufactured by OEG Building Materials and distributed by Manugypse*			
		A1	A2	A3	A1 - A3
		(per MT)	(per MT)	(per MT)	(per MT)
<b>Resource use</b>					
RPR <sub>E</sub> <sup>(1)</sup>	MJ, LHV	8.63E+03	3.53E+00	1.42E+01	8.64E+03
RPR <sub>M</sub> <sup>(2)</sup>	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR <sub>T</sub>	MJ, LHV	8.63E+03	3.53E+00	1.42E+01	8.64E+03
NRPR <sub>E</sub> <sup>(3)</sup>	MJ, LHV	2.86E+04	1.83E+03	2.96E+03	3.34E+04
NRPR <sub>M</sub> <sup>(4)</sup>	MJ, LHV	1.13E+04	0.00E+00	0.00E+00	1.13E+04
NRPR <sub>T</sub>	MJ, LHV	3.99E+04	1.83E+03	2.96E+03	4.47E+04
SM	MJ, LHV	3.10E+02	0.00E+00	0.00E+00	3.10E+02
RSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW <sup>(6)</sup>	m <sup>3</sup>	1.51E+01	2.25E-02	1.26E-01	1.52E+01
<p><b>RPR<sub>E</sub></b>: Renewable Primary Resources Used as Energy Carrier (Fuel); <b>RPR<sub>M</sub></b>: Renewable Primary Resources with Energy Content Used as Material; <b>RPR<sub>T</sub></b>: Renewable Primary Resources Total; <b>NRPR<sub>E</sub></b>: Non-Renewable Primary Resources Used as Energy Carrier (Fuel); <b>NRPR<sub>M</sub></b>: Non-Renewable Primary Resources with Energy Content Used as Material; <b>NRPR<sub>T</sub></b>: Non-Renewable Primary Resources Total; <b>SM</b>: Secondary Materials; <b>RSF</b>: Renewable Secondary Fuels; <b>NRSF</b>: Non-Renewable Secondary Fuels; <b>FW</b>: Use of Net Fresh Water Resources.</p>					

- (1):  $RPR_E = RPR_T - RPR_M$ , where  $RPR_T$  is equal to the value for renewable energy obtained using the CED methodology (LHV).
- (2) Calculated as per ACLCA ISO 21930 Guidance, 6.2 Renewable primary resources with energy content used as a material,  $RPR_M$ .
- (3):  $NRPR_E = NRPR_T - NRPR_M$ , where  $NRPR_T$  is equal to the value for non-renewable energy obtained using the CED methodology (LHV).
- (4): Calculated as per ACLCA ISO 21930 Guidance, 6.4 Non-renewable primary resources with energy content used as a material,  $NRPR_M$ .
- (5): Represents the use of net fresh water calculated from life cycle inventory results, i.e., water consumption
- \* Note that distribution of products (module A4) is not included as per the PCR.





Environmental Indicator	Unit	CT Shaftwall Stud manufactured by OEG Building Materials and distributed by Manugypse*			
		A1	A2	A3	A1 - A3
		(per MT)	(per MT)	(per MT)	(per MT)
<b>Output flows and waste categories</b>					
HWD <sup>(1)</sup>	kg	3.12E-02	1.19E+00	3.28E+01	3.40E+01
NHWD <sup>(2)</sup>	kg	7.32E+01	1.78E+00	3.19E+00	7.82E+01
HLRW <sup>(3)</sup>	m <sup>3</sup>	3.66E-06	1.37E-10	6.05E-08	3.72E-06
ILLRW <sup>(4)</sup>	m <sup>3</sup>	6.20E-05	8.10E-10	5.34E-07	6.25E-05
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	0.00E+00	0.00E+00	1.01E+01	1.01E+01
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>HWD:</b> Hazardous Waste Disposed; <b>NHWD:</b> Non-Hazardous Waste Disposed; <b>RWD:</b> Radioactive Waste Disposed; <b>HLRW:</b> High-Level Radioactive Waste, Conditioned, to Final Repository; <b>ILLRW:</b> Intermediate and Low-Level Radioactive Waste, Conditioned, to Final Repository; <b>CRU:</b> Components for Re-Use; <b>MFR:</b> Materials for Recycling; <b>MER:</b> Materials for Energy Recovery; <b>EE:</b> Exported Energy.					

(1): Calculated from life cycle inventory results, based on datasets classified under "treatment and disposal of hazardous waste." and EPD values. The manufacturer does not generate hazardous waste.

(2): Calculated from life cycle inventory results, based on waste that is neither "hazardous" nor "radioactive" and EPD values.

(3): Calculated from life cycle inventory results, based on ecoinvent waste flow "high-level radioactive waste for final repository". The manufacturer does not generate radioactive waste.

(4): Calculated from life cycle inventory results, based on ecoinvent waste flow "low-level radioactive waste for final repository". The manufacturer does not generate radioactive waste.

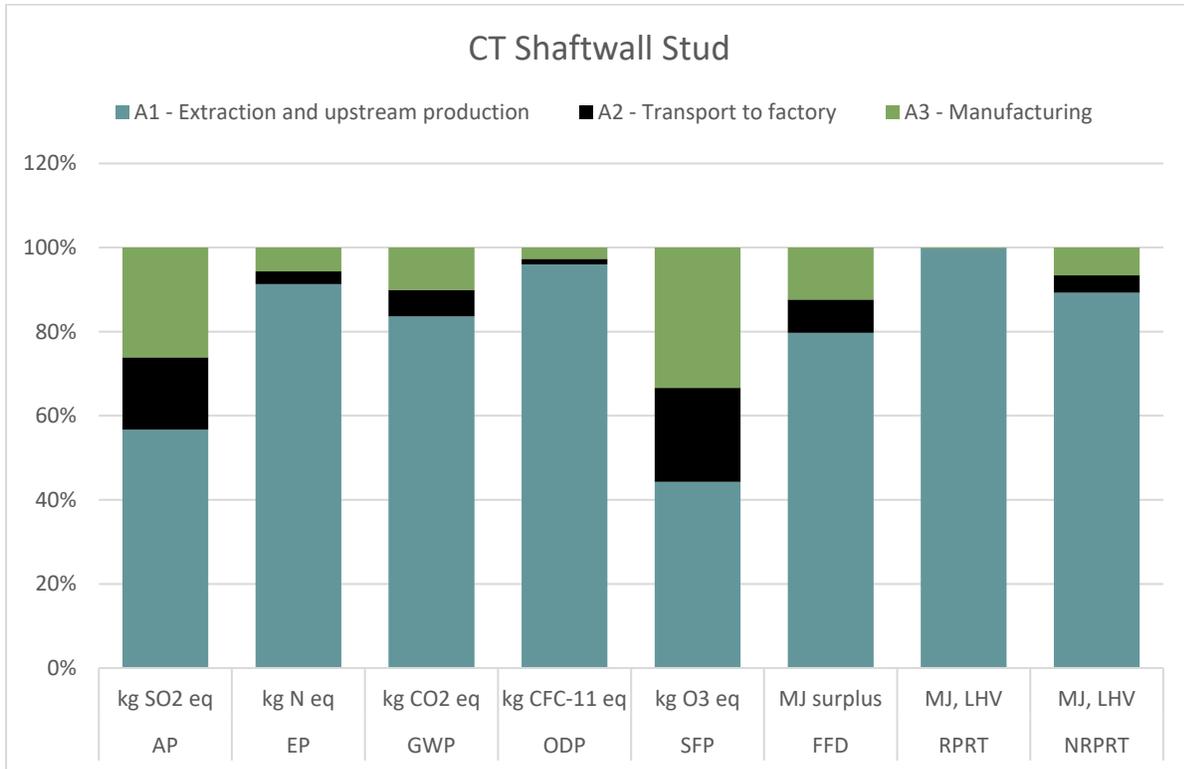
\* Note that distribution of products (module A4) is not included as per the PCR.





## 4.2. CONTRIBUTION ANALYSIS

As can be seen from the figure below, extraction and upstream production (A1) is the main contributor to all potential impact categories, as well as renewable and non-renewable resource consumption. It should be noted that the contribution from the module “transport to factory (A2)” and from the module “manufacturing (A3)” is equal to or greater than 17% and 26%, respectively, when it comes to acidification potential (AP) and smog formation potential (SFP).



**AP:** Acidification Potential; **EP:** Eutrophication Potential; **GWP:** Global Warming Potential; **ODP:** Ozone Layer Depletion Potential; **SFP:** Smog Formation Potential; **FFD:** Fossil Fuel Depletion Potential; **RPRT:** Renewable Primary Resources Total; **NRPRT:** Non-Renewable Primary Resources Total.



## 5. ADDITIONAL ENVIRONMENTAL INFORMATION

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### 5.1. ENVIRONMENT AND HEALTH DURING MANUFACTURING AND INSTALLATION

OEG Building Materials is unwavering in its commitment to environmental sustainability. They prioritize eco-conscious practices throughout their operations, from sourcing materials with low environmental impact to reducing waste through efficient manufacturing processes. Their energy-efficient facilities and investments in renewable energy sources reflect their dedication to minimizing our carbon footprint. They actively promote recycling and responsible resource management, ensuring that their products and packaging are environmentally friendly.

### 5.2. EXTRAORDINARY EFFECTS

No extraordinary effects are expected from the CT Shaftwall Stud.

### 5.3. DELAYED EMISSIONS

No delayed emissions are considered.

### 5.4. ENVIRONMENTAL ACTIVITIES AND CERTIFICATIONS

Manugypse and OEG Building Materials Inc. have also published a Health Product Declaration® for the CT Shaftwall Stud product. More details are available on the HPDC public repository: <https://www.hpdc-collaborative.org/hpd-public-repository/>.

### 5.5. FURTHER INFORMATION

More information about Manugypse and OEG Building Materials are available at <https://www.manugypse.com/en/> and <https://oegusa.com/>, respectively.





## 6. REFERENCES[6][7]

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- [1] International Organization for Standardization (ISO), "ISO 14025 Environmental labels and declarations - Type III environmental declarations - Principles and procedures," 2006.
- [2] UL Environment, "PCR Part B: Designated Steel Construction Product EPD Requirements, v.2.0 (UL 10010–34)," 2020[Online]. Available: <https://www.ul.com/resources/product-category-rules-pcrs>.
- [3] International Organization for Standardization (ISO), "ISO 14044:2006/AMD1:2017/AMD 2:2020 Environmental management - Life cycle assessment - Requirements and guidelines," 2006.
- [4] International Organization for Standardization (ISO), "ISO 14040:2006/AMD 1:2020 Environmental management - Life cycle assessment - Principles and framework," 2020.
- [5] International Organization for Standardization (ISO), "ISO 21930:2017(E) Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services," 2017.
- [6] Vertima, "Life Cycle Assessment of OEG Building Materials Inc. CT Shatwall Stud distributed by Manugypse," 2024.
- [7] ASTM International, "ASTM Program Operator Rules. Version: 8.0, Revised 04/29/20," 2020[Online]. Available: [www.astm.org](http://www.astm.org).

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