ENVIRONMENTAL PRODUCT DECLARATION

Site Specific EPD – Riverside, CA

COLD-FORMED STEEL FRAMING SYSTEMS

INTERIOR FRAMING, EXTERIOR FRAMING, INTERIOR FINISHING, EXTERIOR FINISHING, FLOOR FRAMING, ACCESSORIES

ClarkDietrich proudly offers steel framing products and services nationwide, plus the backing of our SFIA certification.

ClarkDietrich

ClarkDietrich is in an unprecedented position to help you bring change to the built environment. One of the ways we do that is by offering the industry's most comprehensive lineup of labor-saving, steel construction products and services across the United States and abroad. But also key to our leadership are the steps we've taken to be at the forefront of contributing to the sustainability of your projects.

This Environmental Product Declaration (EPD) document is just one of many actions that back our responsible stance. It is a standardized, internationally recognized tool containing data to help you evaluate our products' impact from a comprehensive level. Further, our EPDs are third-party verified based on an ISO-compliant assessment of our products' complete life cycle, from raw material
to delivery.

For more details, visit
clarkdietrich.com

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CLARKDIETRICH COLD-FORMED STEEL PRODUCTS
North American Product Category Rule for Designated Steel Construction Products

According to ISO 14025, EN 15804 and ISO 21930:2017

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	UL Environment 333 Pfingsten Road Northbrook, IL 60611	https://www.ul.com/ https://spot.ul.com
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	General Program Instructions v.2.5 March 2020	
MANUFACTURER NAME AND ADDRESS	ClarkDietrich | 6510 General Drive Riverside, CA 92509	
DECLARATION NUMBER	4789752901.103.1	
DECLARED PRODUCT & FUNCTIONAL UNIT OR DECLARED UNIT	Cold-Formed Steel Products Site Specific-Riverside, CA; 1 metric ton	
REFERENCE PCR AND VERSION NUMBER	UL Part B: Designated Steel Construction Products v2.0 (August 26, 2020)	
DESCRIPTION OF PRODUCT APPLICATION/USE	Cold-Formed Steel Products are manufactured for interior framing, interior finishing, exterior framing, floor framing, as well as clips, connectors, metal lath and accessories.	
PRODUCT RSL DESCRIPTION (IF APPL.)	N/A	
MARKETS OF APPLICABILITY	North America	
DATE OF ISSUE	January 1, 2021	
PERIOD OF VALIDITY	5 Years	
EPD TYPE	Product-Specific Type III	
EPD SCOPE	Cradle-to-gate	
YEAR(S) OF REPORTED PRIMARY DATA	2019	
LCA SOFTWARE & VERSION NUMBER	GaBi v10	
LCI DATABASE(S) & VERSION NUMBER	GaBi 2020.2	
LCIA METHODOLOGY & VERSION NUMBER	TRACI 2.1	

This PCR review was conducted by:	UL Environment PCR Review Panel epd@ulenvironment.com
This declaration was independently verified in accordance with ISO 14025: 2006. ☐ INTERNAL ☒ EXTERNAL	Grant R. Martin Grant R. Martin, UL Environment
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	James Mellentine James Mellentine, Thrive ESG

LIMITATIONS

Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc.

Accuracy of Results: EPDs regularly rely on estimations of impacts; the level of accuracy in estimation of effect differs for any particular product line and reported impact.

Comparability: EPDs from different programs may not be comparable. Full conformance with a PCR allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible". Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

1. Product Definition and Information

1.1. Description of Company/Organization

ClarkDietrich offers a comprehensive lineup of steel construction products and services across the United States and abroad. Using cold-formed steel, we manufacture innovative products for interior framing, interior finishing, exterior framing and floor framing, as well as clips, connectors, metal lath and accessories.

Within our facilities we actively recycle 100% of steel waste from all aspects of our processing, beginning with the slitting of the master coil and continuing through to the final roll-forming of our product. Every day at every plant. Steel is fully recyclable, and we have always been diligent in this effort.

Product development is focused on labor savings systems, which incorporates optimal utilization of all raw materials. From concept to launch, our product offering consciously engages optimal use of material as well as ease of construction.

Formed in 2011 through the combination of two established market leaders—ClarkWestern Building Systems and Dietrich Metal Framing— ClarkDietrich is in an unprecedented position to help you bring change to the built environment.

Manufacturing Site: Riverside, CA

1.2. Product Description

Product Identification

Cold-formed steel framing products have bare steel thicknesses in the range of 0.0120 inches to 0.1180 inches. These products include interior framing, interior finishing trims and accessories, exterior framing, floor framing, expanded metal lath, plaster trim and accessories.

Using cold-formed steel, innovative products are manufactured for use as interior framing, interior finishing, exterior framing, floor framing, as well as metal lath and accessories. These products are most commonly used in compliance with the International Building Code and the International Residential Code.

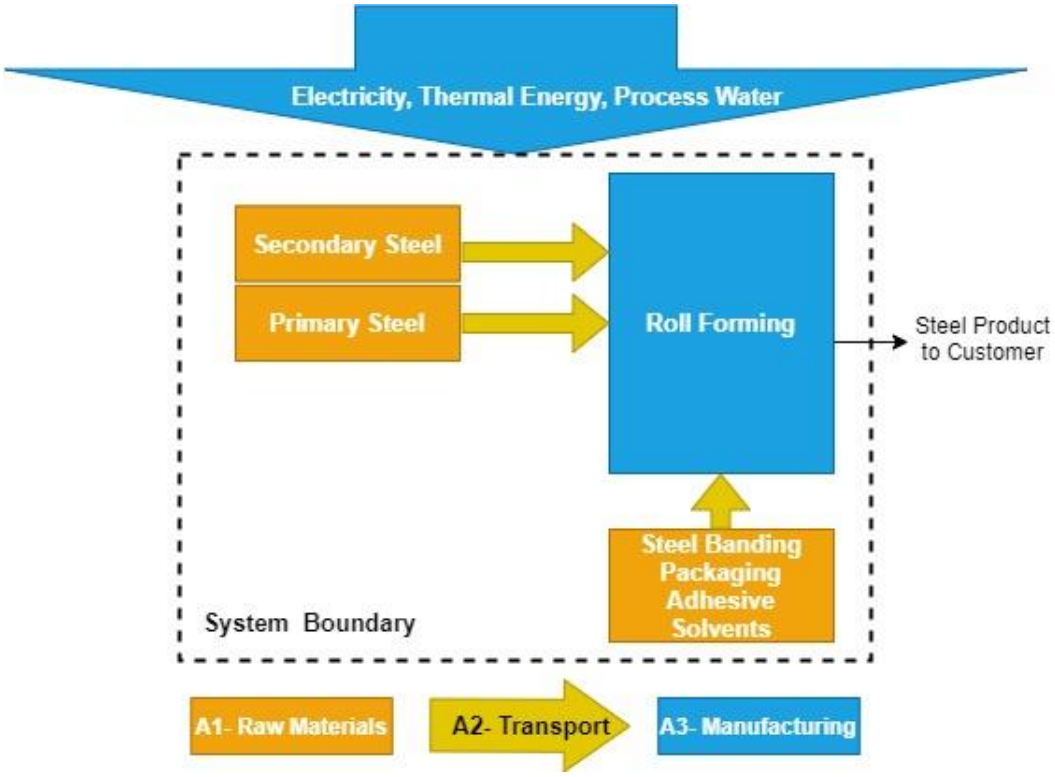
Product Specification List (Reference website for full product list in each Product Category

Product Image	Product Category	Product Description (non-exhaustive lists)
	**Interior Framing**	• ProSTUD® Drywall Framing • Shaftwall and Area Separation Wall Systems • RedHeader PRO® Rough Opening System • MaxTrak® Slotted Deflection Track • RC Deluxe® Resilient Channel and various channels and framing members
	**Exterior Framing**	• Structural Framing • Flat Strapping • U-Channel Bridging
	**Interior Finishing**	• 103 Deluxe® Corner Bead • Quicksilver™ Corner Bead • Metal Casing Beads and Control Joints

Product Image	Product Category	Product Description (non-exhaustive lists)
	**Exterior Finishing**	• Metal Lath • Corners and Casing Beads • Control Joints • Expansion Joints
	**Floor Framing**	• C-Joist, Structural Rim Track and Accessories

Flow Diagram and System Boundary

The diagram below shows the flow of cold-formed steel products through major processes. The arrows between processes indicate transportation of intermediate products. Material input flows have associated inbound transportation.



1.3. Application

Using cold-formed steel, innovative products are manufactured for interior framing, interior finishing, exterior framing, floor framing, as well as metal lath and accessories. These products are most commonly used in compliance with the International Building Code and the International Residential Code.

Common applications of cold-formed steel framing products are as follows:

- Interior Framing – Nonstructural and Structural Load Bearing
- Exterior Framing – Structural Load-Bearing and Curtain-Wall
- Interior Finishing – Nonstructural
- Exterior Finishing – Nonstructural
- Floor Framing – Structural Load-Bearing
- Accessories – Structrual and Nonstructral

1.4. Declaration of Methodological Framework

The EPD has been created strictly in accordance to the standards and norms below:

- ISO 14025:2011 Type III environmental declarations - Principles and procedures [EN ISO 14025].
- EN 15942: 2011, Sustainability of construction works – Environmental Product Declarations – Communication format business-to-business. European Committee for Standardization [EN 15942].
- ISO 21930: 2017, Sustainability in building and construction – Environmental declaration of building products, International Organization for Standardization, Geneva, Switzerland [ISO 21930].
- Product Category Rule (PCR) Guidance for building-related products and services- Part A: Life Cycle Assessment Calculation Rules and Report Requirements [UL 2018]
- Product Category Rule (PCR) Guidance for building-related products and services- Part B: Designated steel construction product EPD requirements [UL 2020].

1.5. Technical Requirements

Applicable Product and Manufacturing Standards and Specifications per the International Building Code or as generally accepted practice in the industry if not referenced by the International Building Code. List is not intended to be all-inclusive or comprehensive.

Product Category	Product Description	Product Specification	Material Specification
Interior Framing	ProSTUD® Drywall Framing Shaftwall and Area Separation Wall Systems MaxTrak® Slotted Deflection Track RC Deluxe® Resilient Channel and various channels and framing members	AISI S220	ASTM A1003

	RedHeader Pro® Rough Opening System	AISI S240	ASTM A1003
Exterior Framing	Structural Framing	AISI S240	ASTM A1003
Interior Finishing	103 Deluxe® Corner Bead Quicksilver™ Corner Bead Metal Casing Beads and Control Joints	ASTM C1047	ASTM A653
Exterior Finishing	Metal Lath	ASTM C847	ASTM A653
	Corners, Casing Beads, Control Joints and Expansion Joints	ASTM C1047	ASTM A653
Floor Framing	C-Joist Structural Rim Track and Accessories	AISI S240	ASTM A1003

1.6. Properties of Declared Product as Delivered

The following table lists metal thicknesses and strengths for all product lines:

Product Category	Gauge	Mils	Base Steel Thickness (inches)	Design Thickness (inches)	Yield Strength (ksi)
Interior Framing	25 to 20	15 to 33	0.0150 to 0.0329	0.0158 to 0.0346	33 to 70
Exterior Framing	20 to 12	33 to 97	0.0329 to 0.0966	0.0346 to 0.1017	33 to 50
Interior Finishing	26 min	12 min	0.012 min	0.01224 min	N/A
Exterior Finishing	26 min	12 min	0.012 min	0.01224 min	N/A
Floor Framing	18 to 12	43 to 97	0.0428 to 0.0966	0.0451 to 0.1017	33 to 50
Accessories	20 to 10	33 to 118	0.0329 to 0.1180	0.0346 to 0.1242	33 to 50
Product		**Weight per Sq. Yd.**		**Sheet Size**	**Galvanization**
Exterior Finishing - Metal Lath		2.5 or 3.4 lbs.		27” by 97”	G-60

NOTE: For more detailed product line information go to http://www.clarkdietrich.com/products.

1.7. Material Composition

Cold-formed steel framing products are made from coils of low alloy sheet steel with various metallic and conversion coatings for corrosion protection. Primary product components as follows:

COLD-FORMED STEEL PRODUCTS BASED ON 6" CSJ, G60, 43 MIL STUD	
Component Name	*Mass by % total*
Base Metal	*> 97.9%*
Metallic Coating	*< 2.1%*

1.8. Manufacturing

Definitions:

• Prime Steel Coil

  • Steel coils that are purchased to meet or exceed the specifications needed to manufacture a specific product or products.

• Secondary Steel Coils

  • Steel coils that are purchased on the secondary market that may or may not match exact specifications needed but can be cold reduced and coated to meet desired specifications.

  • Steel coil production takes place at either a domestic or foreign steel mill. Steel coils are sourced from the following locations: United States (61.7%), Brazil (21.8%), Canada (10.4%), Vietnam (3.8%), Mexico (1.3%) or South Africa (1.0%).

Process for Prime Steel

Prime Steel Coils are received into the warehouse from external suppliers. The Prime Steel Coils are slit into appropriate widths in a continuous slitting process. Then the slit coils are loaded into the roll forming machinery where continuous roll formers shape the slit coils into finished products. The finished products are packaged into skids, and the skids are loaded onto a truck where they will be shipped to the customer.

Process for Secondary Steel

Secondary Steel Coils are received into the warehouse. Where necessary secondary steel coils are cold reduced to the appropriate thickness. When necessary these coils also have additional corosion protection coatings applied after being cold reduced. Then Secondary Steel Coils are slit into narrow coils, and the narrow coils are loaded into the roll forming machinery where they are roll formed into finished products. The finished products are packaged into skids, and the skids are loaded onto a truck where they will be shipped to the customer.

1.9. Packaging

All of the various steel framed products are packaged and shipped using one of the following methods: skids, boxes, buckets or cartons.

Product Image	Product Category	Product Description
	Exterior Framing: Skid	Products are generally nested together in pairs, then stacked with other sets of nested pairs and are held together using banding and wood dunnage.
	Interior Framing: Skid	Products are generally nested together in pairs, then stacked with other sets of nested pairs and are held together using banding and wood dunnage.
	Exterior Finishing: Metal Lath - Skids	Product sheets are stacked on top of each other in a bundle and held together with plastic strapping. The bundles are stacked on top of each other and held together using banding and wood dunnage.
	Interior & Exterior Finishing: Boxes	Desired quantity of products are stacked on top of each other, then secured inside of a cardboard box. Then cardboard boxes are stacked together with other boxes to form a skid of product and held together using banding and wood dunnage.

1.10. Transportation

Transportation to customer after production not declared in this EPD.

1.11. Product Installation

Product Installation is not declared in this EPD.

1.12. Use

Use of product is not declared in this EPD.

1.13. Reference Service Life and Estimated Building Service Life

As the declared system boundary is A1-A3, a reference service life is not declared.

1.14. Reuse, Recycling, and Energy Recovery

Reuse, Recyling and Energy Recovery of product is not declared in this EPD.

1.15. Disposal

Disposal of product is not declared in this EPD.

2. Life Cycle Assessment Background Information

2.1. Functional or Declared Unit

The declared unit of calculation is one metric ton of Cold-Formed Steel Product (1000 kg).

Name	Required Unit	Value
Declared Unit	Metric Ton	1
Density	kg/m^3	7,850

2.2. System Boundary

The declared system boundary is cradle-to-gate. Cradle-to-gate includes the PCR life cycle modules A1, A2, and A3. The declared system boundaries are shown below:

Production			Installation		Use Stage							End-Of-Life				Next Product System
Raw material supply (extraction, processing, recycled material)	Transport to manufacturer	Manufacturing	Transport to building site	Installation into building	Use / application	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / demolition	Transport to EoL	Waste processing for reuse, recovery or recycling	Disposal	Reuse, recovery or recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

X= declared module; MND= module not declared

2.3. Estimates and Assumptions

Transport assumptions

Transport distance of all waste materials, other than steel scrap, to disposal is assumed to be 50 miles and is carried out by truck.

Final product packaging assumptions

ClarkDietrich does not currently track packaging waste. As a result, it is assumed that all of the incoming packaging material is assigned to the final product going out.

Steel assumptions

As is in line with the PCR, all steel manufacturing processes use scrap, regardless of production route. However, input of scrap is considered to enter the system without burden, and reprocessing into valuable secondary steel is assumed to be done outside of the system boundary. This approach is considered to be consistent with a cradle-to-gate analysis, as the load of using scrap as well as the credit of creating scrap at the end-of-life are similarly excluded from the system boundary.

Data approximations

Most of the material inputs declared by ClarkDietrich for the production of cold-formed steel products could be matched with corresponding datasets from the GaBi 10 database. However, in some few instances a direct match was not possible and proxy data were used instead. It is worth noting that most of these proxies were used for auxiliary materials and packaging materials that do not significnatly contribute to the overall mass balances of the unit processes considered in this study. Take for instance, the cold reduction and slitting unit process (described in more detail in later sections of this report). This unit process is the most complex unit process in terms of the number and variety of materials inputs. However, the auxiliaries used in this process represent less than 2% of the total materials inputs. This information combined with the fact that the proxy materials themselves do not contribute significantly to the overall impacts, allows us to conclude that the use of proxies do not significantly alter the results of this study.

2.4. Cut-off Criteria

All input/output process data for the production of cold-formed steel products have been modelled. No cut-offs have been applied.

2.5. Data Sources

All upstream data have been taken from the GaBi 2021 database (content version 2021.1), using GaBi software. All manufacturing data were collected from ClarkDietrich for the calendar year 2019.

To ensure the highest data quality, primary data were collected by ClarkDietrich. Where primary data could not be collected, background LCI data comes from the GaBi database.

2.6. Data Quality

Representativeness

Temporal: All primary data were collected for the year 2019. All secondary data come from the GaBi 2021 databases and are representative of the years 2011-2020. Most of the burdens come from the AISI datasets and not from primary data. As the study intended to compare the product systems for the reference year 2019, temporal representativeness

is considered to be high.

Geographical: All primary and secondary data were collected specific to the countries or regions under study. Where country-specific or region-specific data were unavailable, proxy data were used. Geographical representativeness is considered to be high.

Technological: All primary and secondary data were modeled to be specific to the technologies or technology mixes under study. Where technology-specific data were unavailable, proxy data were used. Technological representativeness is considered to be high.

Completeness

All relevant process steps for each product system were considered and modeled to represent each specific situation. The process chain is considered sufficiently complete and detailed with regard to the goal and scope of this study.

Reliability

Primary data for the production of cold-formed steel products were collected by ClarkDietrich using a specifically developed spreadsheet provided by thinkstep. Cross-checks concerning the plausibility of mass and energy flows were carried out by Sphera on the data received via email, telephone consultation and teleconferencing.

The foreground data is considered to be very good as it meticulously recorded all relevant energy and material flows. The background data quality is considered to be good.

Consistency

All assumptions, methods and data are consistent with each other and with the study's goal and scope. Differ-ences in background data quality were minimized by mainly using LCI data from the GaBi 2021 databases (with the exception of the steel input which was informed by AISI data). System boundaries, allocation rules, and impact assessment methods have been applied consistently throughout the study.

Steel background dataset

American iron and steel institute (AISI) data was used to represent the steel input.

2.7. Period under Review

Primary data collected represent production during the 2019 calendar year. This analysis is intended to represent production in 2019.

2.8. Allocation

Allocation of background data

Allocation of background data (energy and materials) taken from the GaBi 2021 databases is documented online at https://sphera.com/wp-content/uploads/2020/04/Modeling-Principles-GaBi-Databases-2021.pdf.

Allocation in the foreground data

The production process does not give rise to any co-products.

2.9. Comparability (Optional)

Any comparison of EPDs shall be subject to the requirements of ISO 21930. For comparison of EPDs which report different module scopes, such that one EPD includes Module D and the other does not, the comparison shall only be made on the basis of Modules A1, A2, and A3. Additionally, when Module D is included in the EPDs being compared, all EPDs must use the same methodology for calculation of Module D values.

3. Life Cycle Assessment Scenarios

Table 1. Description of the system boundary modules

	PRODUCT STAGE			CONSTRUCT-ION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
	Raw material supply	Transport	Manufacturing	Transport from gate to site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Building Operational Energy Use During Product Use	Building Operational Water Use During Product Use	Deconstruction	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling Potential
EPD Type	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

3.1 Life Cycle Impact Assessment Results

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

Table 2. North American Impact Assessment Results: 1 metric ton of Cold-Formed Steel Product

TRACI v2.1	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
GWP 100 [kg CO_2 eq]	2.30E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ODP [kg CFC-11 eq]	5.03E-09	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
AP [kg SO_2 eq]	4.66E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
EP [kg N eq]	2.47E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
SFP [kg O_3 eq]	8.10E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ADP_{fossil} [MJ, LHV]	1.84E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Table 3. EU Impact Assessment Results: 1 metric ton of Cold- Formed Steel Product

CML v4.2	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
GWP 100 [kg CO_2 eq]	2.29E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ODP [kg CFC-11 eq]	4.37E-09	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
AP [kg SO_2 eq]	4.41E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
EP [kg PO_4^{-3} eq]	4.95E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
POCP [kg ethene eq]	4.41E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
$ADP_{element}$ [kg Sb-eq]	3.17E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ADP_{fossil} [MJ, LHV]	2.59E+04	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

These six impact categories 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.

Global warming potential (GWP) excludes biogenic carbon.

3.2 Life Cycle Inventory Results

Table 4. Resource Use: 1 metric ton of Cold-Formed Steel Product

PARAMETER	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
RPR_E [MJ, LHV]	1.62E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
RPR_M [MJ, LHV]	3.38E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
RPR_T [MJ, LHV]	1.96E+03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
$NRPR_E$ [MJ, LHV]	2.82E+04	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
$NRPR_M$ [MJ, LHV]	3.79E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
$NRPR_T$ [MJ, LHV]	2.82E+04	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
SM [kg]	3.71E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
RSF [MJ, LHV]	-	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
NRSF [MJ, LHV]	-	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
RE [MJ, LHV]	-	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
FW [m^3]	1.10E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

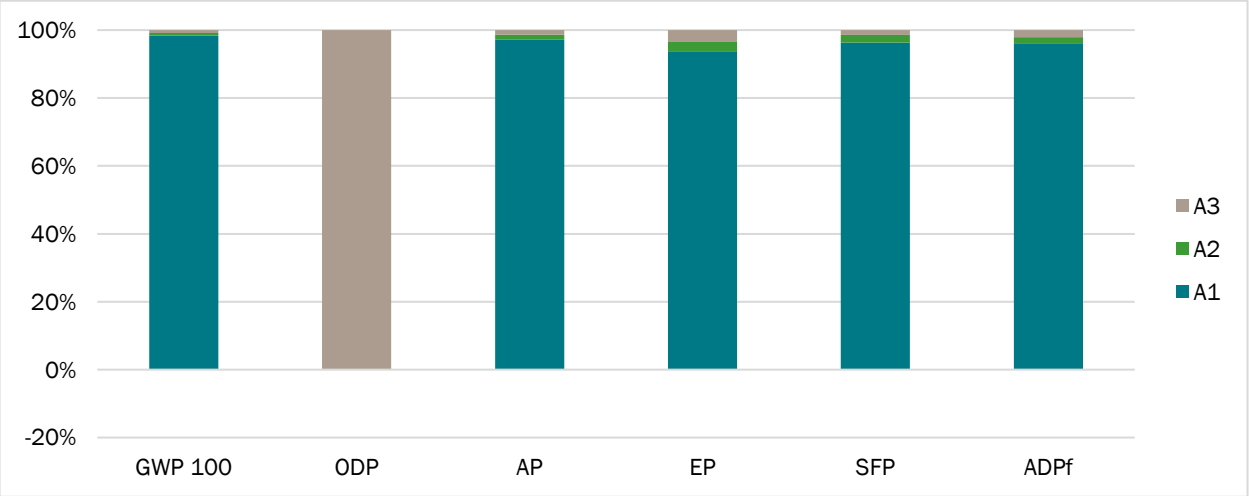
Table 5. Output Flows and Waste Categories: 1 metric ton of Cold-Formed Steel Product

PARAMETER	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
HWD [kg]	4.40E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
NHWD [kg]	9.23E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
HLRW [kg]	1.05E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
ILLRW [kg]	8.79E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
CRU [kg]	-	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
MFR [kg]	2.48E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
MER [kg]	-	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND
EE [MJ, LHV]	-	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

4. Life Cycle Assessment Interpretation

Module A1 contributes to over 89% of the impacts across all impact categories except ozone depletion (ODP), renewable primary resources with energy content used as material (RPR_M), non-renewable primary resources with energy content used as material ($NRPR_M$), hazardous waste disposal (HWD) and materials for recycling (MFR). ClarkDietrich's fabrication operations (A3) contribution to these categories is between 99% to100%.

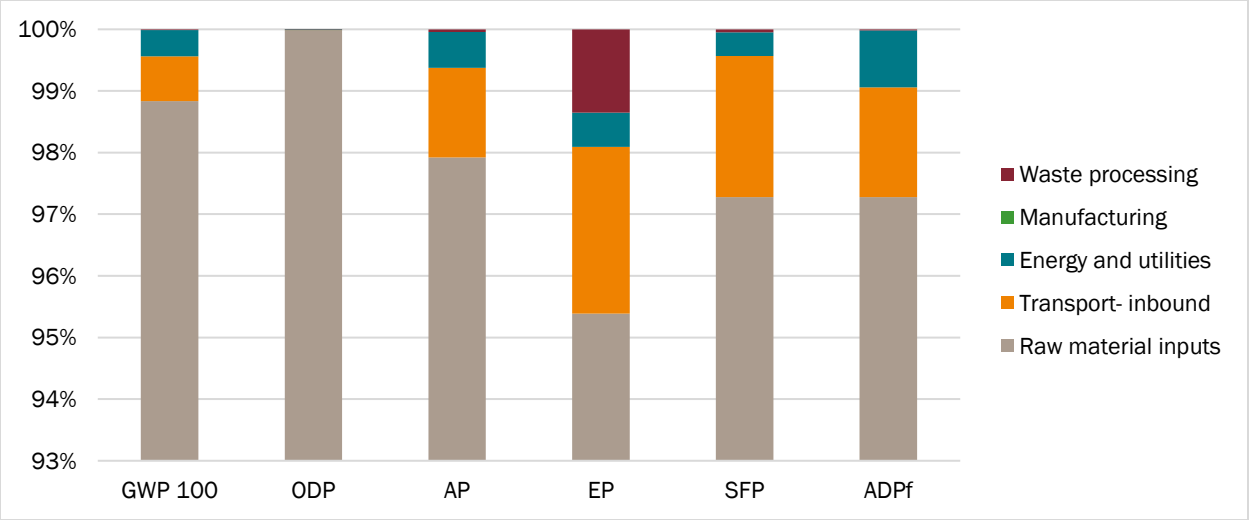
Module A2 contributes very little across the categories with a maximum of about 3% in the case of eutrophication potential (EP).



For most impact categories/indicators, the production of raw material inputs accounts for most of the impacts, which is mainly attributed to the steel coil used to create the framing products.

Energy and utility consumption (in the form of electricity, natural gas and water) are the next most significant contributors to manufacturing stage impacts for this product group. Inbound transport (i.e., transport of material inputs to the production site) makes some contribution to manufacturing stage impacts across the categories and indicators.

Waste management (which includes transport of waste material to recovery or disposal, and relevant waste processing) makes negligible contributions to overall production phase impacts.



5. Supporting Documentation

Additional information Safety Data Sheets (SDS) and Health Product Declarations (HPD) may be found at https://www.clarkdietrich.com/support-tools/support-docs.

6. References

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