



Declaration Owner

SCAFCO Steel Stud Company

2800 E. Main Ave
Spokane, WA 99220
Phone: 1.509.343.9000
Email: Technical@SCAFCO.com
www.SCAFCO.com

Product:

Steel Framing Studs, Track, and Accessories

Declared Unit

The declared unit is one metric ton of light gauge steel studs, track, and accessories

EPD Number and Period of Validity

SCS-EPD-10009
EPD Valid May 12, 2025 through May 11, 2030

Product Category Rule

PCR Guidance for Version 4.0. UL Environment. March 2022.


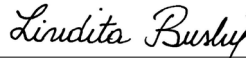
PCR Guidance for Building-Related Products and Services.

Part B: Designated Steel Construction Product EPD Requirements. UL Environment. August 2020.

Program Operator

SCS Global Services
2000 Powell Street, Ste. 600, Emeryville, CA 94608
+1.510.452.8000 | www.SCSglobalServices.com



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Address:	2800 E. Main Ave, Spokane, WA 99220														
Declaration Number:	SCS-EPD-10009														
Declaration Validity Period:	EPD Valid May 12, 2025 through May 11, 2030														
Program Operator:	SCS Global Services														
Declaration URL Link:	https://www.scsglobalservices.com/certified-green-products-guide														
LCA Practitioner:															
LCA Software and LCI database:	OpenLCA 2.3.1 software and the Ecoinvent v3.10 database														
Product's Intended Application:	Steel framing studs, track, and accessories are used in non-load bearing and structural framed wall assemblies, floor and or ceiling framing, soffit framing														
Product RSL:	n/a														
Markets of Applicability:	Global														
EPD Type:	Product-Specific														
EPD Scope:	Cradle-to-Gate														
LCIA Method and Version:	IPCC AR5, TRACI 2.1, CML-IA baseline 4.8														
Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071	<input type="checkbox"/> internal <input checked="" type="checkbox"/> external														
LCA Reviewer:	 Lindita Bushi, PhD, Athena Sustainable Materials Institute														
Part A Product Category Rule:	PCR Guidance for Building-Related Products and Services Part A: Life Cycle Assessment Calculation Rules and Report Requirements. Version 4.0. UL Environment. March 2022.														
Part A PCR Review conducted by:	Lindita Bushi, PhD (Chair); Hugues Imbeault-Tétreault, ing., M.Sc.A.; Jack Geibig														
Part B Product Category Rule:	PCR Guidance for Building-Related Products and Services. Part B: Designated Steel Construction Product EPD Requirements. UL Environment. August 2020.														
Part B PCR Review conducted by:	Thomas Gloria, PhD; Brandie Sebastian, James Littlefield														
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:	 Lindita Bushi, PhD, Athena Sustainable Materials Institute														
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Disclaimers: This EPD conforms to ISO 14025, 14040, 14044, and ISO 21930.

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.

In accordance with ISO 21930:2017, EPDs are comparable only if they comply with the core PCR, use the same sub-category PCR where applicable, include all relevant information modules and are based on equivalent scenarios with respect to the context of construction works.

The owner of the declaration shall be liable for the underlying information and evidence; SCS shall not be liable with respect to manufacturer information, life cycle assessment data, and evidence supplied or made available to SCS.

1. SCAFCO Steel Stud Company

SCAFCO Steel Stud Company is a manufacturer of a complete line of steel framing products and accessories. Providing direct access to our engineering department, SCAFCO allows contractors to leverage our team to save on labor costs and improve installation efficiency. We produce customers' framing products to exact specifications, saving time and in-field modifications. SCAFCO's distributors have large inventories of standard products, which limits lead times and eliminates lost work time while waiting for materials on the jobsite.

SCAFCO offers a complete line of studs, track, and furring products. These are complemented by our specialty products of custom framing shapes, curved framing products, resilient sound channel, acoustical framing systems, shaftwall studs, rigid wall posts, backing supports, and framing clips/connectors. SCAFCO materials are available at over 20 distribution locations on the Western United States, as well as in Hawaii and Alaska.

2. Products

2.1 PRODUCT DESCRIPTION

The products included in the study scope are intended for use in construction and can be used in a large number of building designs and applications, ranging from commercial to residential applications, in buildings of many different sizes, designs, and locations.

SCAFCO manufactures cold-formed steel framing products from galvanized sheet steel measuring from 0.0147 to 0.127 inches thick in various shapes and sizes as described in Table 1. These products are produced with a variety of galvanized coating thicknesses ranging from G40 up to G90. All SCAFCO products are made from the same quality mill-certified galvanized sheet steel. These steel framing products include steel studs, track, furring members, headers and jambs, clips and connectors, and other accessories products. The average density of the products is 7,850 kg/m³.

Table 1. Product types and available sizes.

Product	Product Description	Sizes
Non-Structural/ Structural Framing Studs	Cold formed with 100% prime mill certified steel; 15 mil to 127 mil available; Standard G40 - G90 Available	1.625" to 16" Web 1.25" to 3.5" Flange
Non-Structural/ Structural Framing Track	Cold formed with 100% prime mill certified steel; 15 mil to 127 mil available; Standard G40 - G90 Available	1.625" to 16" Web 1.25" to 3.5" Flange

Designation	Minimum Thickness (in)	Design Thickness (in)	Design Inside Corner Radii (in)	Galvanized Thickness	Reference Only Gauge No.
25EQ	0.0147	0.0155	0.0860	G40	25
18	0.0179	0.0188	0.0843	G40	25
20EQ	0.0179	0.0188	0.0844	G40	20 – Drywall
30EQD	0.0223	0.0235	0.0820	G40/G60	20 – Drywall
30	0.0296	0.0312	0.0781	G40	20 – Drywall
33EQS	0.0280	0.0295	0.0790	G60	20 – Structural
33	0.0329	0.0346	0.0764	G40/G60/G90	20 – Structural
43EQS	0.0380	0.0400	0.0712	G60	18
43	0.0428	0.0451	0.0712	G60/G90	18
54	0.0538	0.0566	0.0849	G60/G90	16
68	0.0677	0.0713	0.1069	G60/G90	14
97	0.0966	0.1017	0.1525	G60/G90	12
118	0.1180	0.1242	0.1863	G90	10
127	0.1270	0.1337	0.2005	G90	10

2.2 PRODUCT FLOW DIAGRAM

A flow diagram illustrating the production processes and life cycle phases included in the scope of the EPD is provided below.

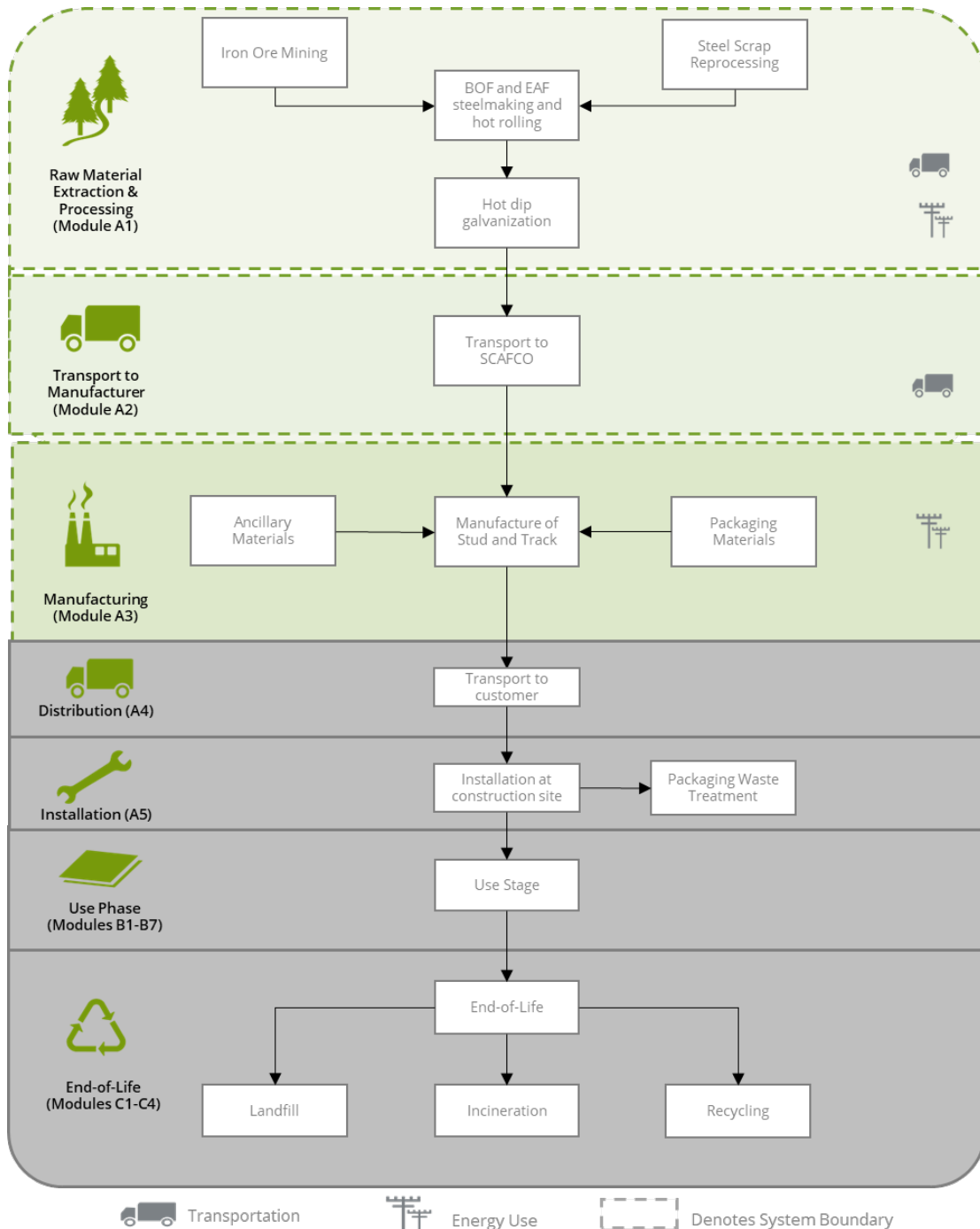


Figure 1. Flow Diagram for the life cycle of the SCAFCO steel framing studs, track, and accessories.

2.3 DECLARATION OF METHODOLOGICAL FRAMEWORK

The scope of the EPD is cradle-to-gate, including raw material extraction and processing, steelmaking, finishing, coating, transportation to the SCAFCO facilities, and final product manufacturing at facilities owned and operated by SCAFCO. The life cycle phases included in the product system boundary are shown below.

Table 2. Life cycle phases included in the SCAFCO steel framing product system boundary.

Product			Construction Process		Use							End-of-life				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 extraction and processing	Transport to manufacturer	Manufacturing	Transport	Construction - installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse, recovery and/or recycling potential
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

X = Module Included | MND = Module Not Declared

Cut-off and allocation procedures are described below and conform to the PCR and ISO standards.

2.4 TECHNICAL DATA

Technical specifications for the steel products in this EPD include the following:

- AISC's Specifications for Cold Formed Steel Design
- AISI/SFIA's North American Specification for the Design of Cold-Formed Steel Structural and Non-Structural Members (S240/S220)
- ASTM A653 – Standard specification for steel sheet, zinc-coated (galvanized) by the hot-dip process
- ASTM A924 Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process
- ASTM A1003 – Standard specification for steel sheet, carbon, and metallic-coated for cold-formed framing members
- ASTM C645 – Standard specification for nonstructural steel framing members
- ASTM C754 – Standard specification for the installation of steel framing members to receive screw-attached gypsum panel products
- ASTM C955 – Standard specification for load-bearing (transverse and axial) steel studs, runners (tracks), and bracing or bridging for screw application of gypsum panel products and metal plaster bases
- ASTM C1007 – Standard Specification for Installation of Load Bearing Steel Studs and Related Accessories
- ASTM E72 – Standard test methods of conducting strength tests of panels for building construction
- ASTM E90 – Standard test method for laboratory measurement of airborne sound transmission loss of building partitions and elements
- ASTM E119 – Standard test methods for fire tests of building construction and materials

The applicable CSI MasterFormat codes for these products include:

- 05 10 00 Structural Metal Framing
- 05 12 00 Structural Steel Framing
- 05 40 00 Cold-Formed Metal Framing
- 05 42 00 Cold-Formed Metal Joist Framing
- 05 42 13 Cold-Formed Metal Floor Joist Framing
- 05 42 23 Cold-Formed Metal Roof Joist Framing
- 05 43 00 Slotted Channel Framing
- 05 44 00 Cold-Formed Metal Trusses
- 09 21 16 Gypsum Board Assemblies
- 09 21 16.23 Gypsum Board Shaft Wall Assemblies
- 09 22 13.23 Resilient Channel Furring
- 09 22 16 Non-Structural Metal Framing

Additionally, the steel products include those specified for steel framing within CSI 09 29 00 Gypsum Board.

2.5 INTENDED APPLICATION

The steel framing is used in nonstructural and structural framing applications including wall assemblies, floor and or ceiling framing, and soffit framing.

2.6 MATERIAL COMPOSITION

The steel products modeled in this study are made from hot dipped galvanized steel. The products are manufactured from galvanized steel conformant to ASTM A653 or ASTM 1003. This type of steel is generally made from low alloy steel with a coating of <2.1% zinc of product weight.

The hot dip galvanization coating thicknesses used by SCAFCO include G40, G60, and G90.

Steel construction products under normal conditions do not present inhalation, ingestion, or contact health hazards. These products are used inside the building envelope, or other structures, and do not include materials or substances which have potential route of exposure to humans or flora/fauna in the environment.

2.7 PROPERTIES OF DECLARED PRODUCT AS DELIVERED

The products are produced in various sizes, as described in Table 1.

2.8 MANUFACTURING

The main material input for this unit process is galvanized steel sheets. Energy inputs include electricity and fuel resources (natural gas, fuel oil, propane).

Electricity and resources (e.g., natural gas, fuel oil, propane, process water) used at the manufacturing facilities are allocated to the products based on the production data collected at the Spokane facility from November 01, 2023 to October 31, 2024 and Stockton facility from June 1, 2023- May 31, 2024 production data.

2.9 PACKAGING

Packaging for the steel framing studs, track, and accessories includes plastic and metal banding, as well as dimensional lumber.

2.10 FURTHER INFORMATION

Further information on the product can be found on the manufacturers' website at <https://www.SCAFCO.com/>

3. LCA: Calculation Rules

3.1 DECLARED UNIT

The declared unit used in the EPD is defined as one (1) metric ton of steel framing studs, track, and accessories, consistent with the PCR.

Table 3. *The modules and unit processes included in the scope for the SCAFCO steel framing products.*

Module	Module Description	Unit Processes Included in Scope
A1	Extraction and processing of raw materials; any reuse of products or materials from previous product systems; processing of secondary materials; generation of electricity from primary energy resources; energy, or other, recovery processes from secondary fuels	✓
A2	Transport (to the manufacturer)	✓
A3	Manufacturing, including ancillary material production	✓
A4	Transport (to the building site)	Module Not Declared
A5	Construction-installation process	Module Not Declared
B1	Product use	Module Not Declared
B2	Product maintenance	Module Not Declared
B3	Product repair	Module Not Declared
B4	Product replacement	Module Not Declared
B5	Product refurbishment	Module Not Declared
B6	Operational energy use by technical building systems	Module Not Declared
B7	Operational water uses by technical building systems	Module Not Declared
C1	Deconstruction, demolition	Module Not Declared
C2	Transport (to waste processing)	Module Not Declared
C3	Waste processing for reuse, recovery and/or recycling	Module Not Declared
C4	Disposal	Module Not Declared
D	Reuse-recovery-recycling potential	Module Not Declared

3.2 UNITS

All data and results are presented using SI units.

3.3 ESTIMATES AND ASSUMPTIONS

- SCAFCO's steel framing studs, track, and accessories are manufactured from galvanized sheet steel sourced from three suppliers in the U.S. To the extent possible, EPDs or third-party verified impact data representing the uncoated steel or hot dip galvanized coil were used to represent steel from the appropriate supplier. In the absence of primary data from suppliers,ecoinvent datasets were used to represent the appropriate steelmaking technology for the remaining steel supply.
- For the suppliers where EPDs did not cover coating processes, hot rolling, pickling and oiling, cold rolling, and hot dip galvanization were modeled using LCIs, taken from the AISI report *Life Cycle Inventories for Steel Product Manufacturing*. Processes were modeled using ecoinvent datasets in the openLCA database.
- Representative inventory data were used to tailor the energy mix for electricity from the regional electricity grid at the slitting facility and the SCAFCO manufacturing facilities. Supply mixes were modeled based on U.S. EPA eGRID 2023 for CAMX, in which the two facilities are located.
- Disposal of manufacturing waste is modeled based on statistics for solid and hazardous waste generation and disposal in the United States, as specified in the PCR. Specifically, where the disposal was done by a third party and the waste disposal method was not explicit, 80% of non-hazardous wastes are disposed in landfill and 20% incinerated. Transportation for end-of-life scenarios was modeled using the EPA WARM model assumption of 20 miles (~32 km), from the point of product use to a landfill, material recovery center, or waste incinerator.

The PCR requires the results for several inventory flows related to construction products to be reported including energy and resource use and waste and outflows. These are aggregated inventory flows, and do not characterize any potential impact; results should be interpreted considering this limitation.

3.4 CUT-OFF RULES

According to the PCR, processes contributing greater than 1% of the total environmental impact indicator for each impact are included in the inventory. No data gaps were allowed which were expected to significantly affect the outcome of the indicator results. No known flows are deliberately excluded from this EPD. Capital goods and facility use outside of manufacturing are excluded from the model. Facility heating is not used in manufacturing and is excluded.

3.5 DATA SOURCES

Primary data were provided by SCAFCO for their Spokane and Stockton facilities. The sources of data are supplier-specific, where possible, representative LCI data and the Ecoinvent database, as listed in Table 4.

Table 4. Data sources for the SCAFCO steel framing studs, track, and accessories product systems.

Component	Material Dataset	Processing Dataset	Publication Date
Raw Materials			
Steel Supplier 1 - Galvanized Steel Coil	Metallic-Coated, Cold-Rolled Steel Sheet	EPD	2023
Steel Supplier 2 - Steel Sheet Products	Metallic-Coated, Cold-Rolled Steel Sheet	EPD	2024
Steel Supplier 3	steel production, converter, low-alloyed steel, low-alloyed Cutoff, U - RoW	Ecoinvent 3.10	2024
	**hot rolling through hot dip galvanization additionally described below	AISI Report	2020
Steel Supplier 4 - Steel Sheet Products	Metallic-Coated, Hot-Rolled Steel Sheet	EPD	2024
	**hot rolling through hot dip galvanization additionally described below	AISI Report	2024
Hot Dip Galvanization	LCI for hot rolling, pickling, cold rolling and hot dip galvanizing from AISI report, modeled in ecoinvent.	Ecoinvent 3.10	2024
		AISI Report	2020
Packaging			
Wood Packaging	market for sawnwood, board, softwood, raw, dried (u=20%) sawnwood, board, softwood, raw, dried (u=20%) Cutoff, U - RoW	Ecoinvent 3.10	2024
Wood Pallet	EUR-flat pallet production EUR-flat pallet Cutoff, U - RoW	Ecoinvent 3.10	2024
Plastic Packaging	market for polypropylene, granulate polypropylene, granulate Cutoff, U - GLO	Ecoinvent 3.10	2024
Steel Banding	market for steel, low-alloyed steel, low-alloyed Cutoff, U - GLO	Ecoinvent 3.10	2024
Resource Use			
Electricity Use	market for electricity, medium voltage electricity, medium voltage Cutoff, U - US-WECC;	Ecoinvent 3.10, eGRID	2024
	modified for the WECC subregion		
Natural Gas	market for heat, central or small-scale, natural gas heat, central or small-scale, natural gas Cutoff, U - RoW	Ecoinvent 3.10	2024
Heavy Fuel Oil	market for heavy fuel oil heavy fuel oil Cutoff, U - RoW	Ecoinvent 3.10	2024
Light Fuel Oil	market for light fuel oil light fuel oil Cutoff, U - RoW	Ecoinvent 3.10	2024
Propane	propane, burned in building machine propane, burned in building machine Cutoff, U - GLO	Ecoinvent 3.10	2024
Water	market for tap water tap water Cutoff, U - RoW	Ecoinvent 3.10	2024
Transportation			
Road	market for transport, freight, lorry 16-32 metric ton, EURO4 transport, freight, lorry 16-32 metric ton, EURO4 Cutoff, U - RoW	Ecoinvent 3.10	2024
Rail	market for transport, freight train transport, freight train Cutoff, U - US	Ecoinvent 3.10	2024
Waste			
Waste	market for inert waste, for final disposal inert waste, for final disposal Cutoff, U - RoW	Ecoinvent 3.10	2024

3.6 DATA QUALITY

The data quality assessment addressed the following parameters: time-related coverage, geographical coverage, technological coverage, precision, completeness, representativeness, consistency, reproducibility, sources of data, and uncertainty.

Table 5. Data quality assessment for the underlying LCA of SCAFCO steel framing studs, track, and accessories product system.

Data Quality Parameter	Data Quality Discussion
Time-Related Coverage: Age of data and the minimum length of time over which data is collected	The most recent available data are used, based on other considerations such as data quality and similarity to the actual operations. Typically, these data are less than 5 years old. All of the data used represented an average of at least one year's worth of data collection, and up to three years in some cases. Manufacturer-supplied data (primary data) are based on annualized production for November 1, 2023-October 31, 2024 for the Spokane facility and June 1, 2023-May 31, 2024, at the Stockton facility.
Geographical Coverage: Geographical area from which data for unit processes is collected to satisfy the goal of the study	The data used in the analysis provide the best possible representation available with current data. Electricity use for product manufacture is modeled using representative data for the US. Surrogate data used in the assessment are representative of global or European operations. Data representative of European operations are considered sufficiently similar to actual processes.
Technology Coverage: Specific technology or technology mix	For the most part, data are representative of the actual technologies used for processing, transportation, and manufacturing operations. Representative fabrication datasets are used to represent the actual processes, as appropriate.
Precision: Measure of the variability of the data values for each data expressed	Precision of results are not quantified due to a lack of data. Data collected for operations were typically averaged for one or more years and over multiple operations, which is expected to reduce the variability of results.
Completeness: Percentage of flow that is measured or estimated	The LCA model included all known mass and energy flows for production of the steel framing products. In some instances, surrogate data used to represent upstream and downstream operations may be missing some data which is propagated in the model. No known processes or activities contributing to more than 1% of the total environmental impact for each indicator are excluded.
Representativeness: Qualitative assessment of the degree to which the data set reflects the true population of interest	<p>Data used in the assessment represent typical or average processes as currently reported from multiple data sources and are therefore generally representative of the range of actual processes and technologies for production of these materials. Considerable deviation may exist among actual processes on a site-specific basis; however, such a determination would require detailed data collection throughout the supply chain back to resource extraction.</p> <p>Several EPDs were utilized to model the upstream raw material suppliers. These EPDs are therefore representative of the actual processes and technologies for production of the steel sheets.</p>
Consistency: Qualitative assessment of whether the study methodology is applied uniformly to the various components of the analysis	The consistency of the assessment is considered to be high. Data sources of similar quality and age are used; with a bias towards Ecoinvent v3.10 data where available. Exceptions to this consistency occurred when EPDs were utilized to model some steel sheet suppliers where the US-EI 2.2 v2020.3 and the GaBi 2020 LCI databases were utilized. Different portions of the product life cycle are equally considered.
Reproducibility: Qualitative assessment of the extent to which information about the methodology and data values would allow an independent practitioner to reproduce the results reported in the study	Based on the description of data and assumptions used, this assessment would be reproducible by other practitioners. All assumptions, models, and data sources are documented.
Sources of the Data: Description of all primary and secondary data sources	Data representing energy use at SCAFCO's facilities represent an annual average and are considered of high quality due to the length of time over which these data are collected, as compared to a snapshot that may not accurately reflect fluctuations in production. Secondary datasets from Ecoinvent are used, as appropriate.
Uncertainty of the Information: Uncertainty related to data, models, and assumptions	Uncertainty related to materials in the steel framing products and packaging is low. Actual supplier data for upstream operations was not available for all suppliers and the study relied upon the use of existing representative datasets. These datasets contained relatively recent data (<10 years) but lacked geographical representativeness. Uncertainty related to the impact assessment methods used in the study are high. The impact assessment method required by the PCR includes impact potentials, which lack characterization of providing and receiving environments or tipping points.

3.7 PERIOD UNDER REVIEW

The period of review for the steel framing studs, track, and accessories produced at the SCAFCO facilities is for November 1, 2023-October 31, 2024 for the Spokane facility and June 1, 2023-May 31, 2024, at the Stockton facility.

3.8 ALLOCATION

This study follows the allocation guidelines of ISO 14044 and allocation rules specified in the PCR and minimized the use of allocation wherever possible. This LCA follows the attributional LCA approach.

Mass allocation was deemed the most accurate and reproducible way of calculating the energy and material requirements for the manufacture of the steel products within the SCAFCO facilities. Primary data for resource use (e.g., electricity, propane, water), waste/byproducts, and emissions released, are allocated on a mass-basis as a fraction of total annual production.

Per ISO 21930, 2.8.4.1.2, the usable output flows such as steel scrap shall not be considered as coproducts but shall be considered waste, and no allocation to secondary material, secondary fuels, or recovered energy shall be permitted. The transportation from the primary producer of steel to the SCAFCO operations is based on primary data provided by SCAFCO, including modes, distances, and amount of steel transported from each supplier to SCAFCO. Transportation was allocated based on the mass and distance that the material was transported.

3.9 COMPARABILITY

Full conformance with the PCR for steel products allows EPD comparability only when all stages of a life cycle have been considered, when they comply with all referenced standards, use the same sub-category Part B PCR, and use equivalent scenarios with respect to construction works. However, variations and deviations are possible.

4. LCA: Scenarios and Additional Technical Information

Manufacturing

Galvanized Steel 'Master' coils are received via rail to the manufacturing plant at Spokane, WA or Stockton, CA facility. The coils are then processed into either flat sheet or into smaller 'slit' coils. Flat sheets are handled by forklift and cut into smaller shapes using either a shear press or CNC machine and then formed via brake-press into the final product, packaged accordingly, and shipped out. Slit coils are handled by a bridge crane, loaded onto a roll-form line, where they are formed into the final product and stacked, and then handled by forklift and packaged accordingly.

Transportation of waste materials at manufacturing assumes a 20 mile (~32 km) average distance to disposal, consistent with assumptions used in the US EPA WARM model. Hazardous wastes are disposed by incineration.

5. LCA: Results

Results of the Life Cycle Assessment are presented below. It is noted that LCA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

The following environmental impact category indicators are reported using characterization factors based on the U.S. EPA's Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts – TRACI 2.1 and IPCC AR5. Abiotic depletion of fossil resources is based on the CML baseline v4.8, August 2016 is also included per the PCR.

TRACI 2.1 Impact Category	Unit
Global Warming Potential (GWP)*	kg CO ₂ eq
Ozone Depletion Potential (ODP)	kg CFC 11 eq
Acidification Potential (AP)	kg SO ₂ eq
Eutrophication Potential (EP)	kg N eq
Smog Formation Potential (SFP)	kg O ₃ eq
Fossil Fuel Depletion (FFD)	MJ Surplus
CML-IA Impact Category	Unit
Abiotic depletion (ADP, ff) for fossil resources	MJ, LHV

*Results presented in this EPD are based on IPCC AR5

These 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.

The following inventory parameters, specified by the PCR, are also reported.

Resources	Unit	Waste and Outflows	Unit
RPR _E : Renewable primary resources used as energy carrier (fuel)	MJ, LHV	HWD: Hazardous waste disposed	kg
RPR _M : Renewable primary resources with energy content used as material	MJ, LHV	NHWD: Non-hazardous waste disposed	kg
NRPR _E : Non-renewable primary resources used as an energy carrier (fuel)	MJ, LHV	HLRW: High-level radioactive waste, conditioned, to final repository	kg
NRPR _M : Non-renewable primary resources with energy content used as material	MJ, LHV	ILLRW: Intermediate- and low-level radioactive waste, conditioned, to final repository	kg
SM: Secondary materials	kg	CRU: Components for re-use	kg
RSF: Renewable secondary fuels	MJ, LHV	MR: Materials for recycling	kg
NRSF: Non-renewable secondary fuels	MJ, LHV	MER: Materials for energy recovery	kg
RE: Recovered energy	MJ, LHV	EE: Recovered energy exported from the product system	MJ, LHV
FW: Use of net freshwater resources	m ³	-	-

Table 6 and Table 7 provide the results for steel framing studs, track, and accessories for each facility. Table 7 provides results based on the production-weighted average of the two facilities.

Table 6. Life Cycle Impact Assessment (LCIA) results for the declared unit of steel framing studs, track, and accessories fabricated by SCAFCO at the Spokane, WA facility. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits.

Impact Category	Life cycle stage			
	A1	A2	A3	Total (A1-A3)
IPCC AR5				
GWP (kg CO ₂ eq)	1,850	122	34.7	2,010
	92%	6%	2%	100%
TRACI 2.1				
ODP (kg CFC-11 eq)	6.60	0.284	0.128	7.01
	94%	4%	2%	100%
AP (kg SO ₂ eq)	3.04	0.540	0.251	3.83
	79%	14%	7%	100%
EP (kg N eq)	109	4.38	2.23	115
	94%	4%	2%	100%
SFP (kg O ₃ eq)	1.89x10 ⁻⁵	2.03x10 ⁻⁶	5.55x10 ⁻⁷	2.14x10 ⁻⁵
	88%	9%	3%	100%
FFD (MJ Surplus)	1,540	134	56.2	1,730
	89%	8%	3%	100%
CML-IA				
ADP, FF (MJ)*	21,100	1,330	468	22,900
	92%	6%	2%	100%

Table 7. Life Cycle Impact Assessment (LCIA) results for the declared unit of steel framing studs, track, and accessories fabricated by SCAFCO at the Stockton, CA facility. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits.

Impact Category	Life cycle stage			
	A1	A2	A3	Total (A1-A3)
IPCC AR5				
GWP (kg CO ₂ eq)	1,560	128	29.8	1,720
	91%	7%	2%	100%
TRACI 2.1				
ODP (kg CFC-11 eq)	5.65	0.298	0.112	6.06
	93%	5%	2%	100%
AP (kg SO ₂ eq)	0.419	0.566	0.203	1.19
	35%	48%	17%	100%
EP (kg N eq)	101	4.59	2.06	108
	94%	4%	2%	100%
SFP (kg O ₃ eq)	1.57x10 ⁻⁵	2.13x10 ⁻⁶	4.70x10 ⁻⁷	1.83x10 ⁻⁵
	86%	12%	3%	100%
FFD (MJ Surplus)	1,470	141	45.9	1,660
	89%	8%	3%	100%
CML-IA				
ADP, FF (MJ)*	18,600	1,400	380	20,400
	91%	7%	2%	100%

Table 8. Life Cycle Impact Assessment (LCIA) production weighted average results for the declared unit of steel framing studs, track, and accessories fabricated by SCAFCO at the Spokane, WA and Stockton, CA facilities. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits.

Impact Category	Life cycle stage			
	A1	A2	A3	Total (A1-A3)
IPCC AR5				
GWP (kg CO ₂ eq)	1,660	126	31.4	1,810
	91%	7%	2%	100%
TRACI 2.1				
ODP (kg CFC-11 eq)	5.97	0.293	0.117	6.38
	94%	5%	2%	100%
AP (kg SO ₂ eq)	1.29	0.557	0.219	2.07
	62%	27%	11%	100%
EP (kg N eq)	104	4.52	2.11	110
	94%	4%	2%	100%
SFP (kg O ₃ eq)	1.67x10 ⁻⁵	2.10x10 ⁻⁶	4.99x10 ⁻⁷	1.93x10 ⁻⁵
	87%	11%	3%	100%
FFD (MJ Surplus)	1,500	139	49.3	1,680
	89%	8%	3%	100%
CML-IA				
ADP, FF (MJ)*	19,500	1,370	409	21,200
	92%	6%	2%	100%

*A1 Abiotic depletion is calculated by summing cumulative energy indicators from supplier EPDs and ecoinvent data.

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

Comparison of the environmental performance of construction works and construction products using EPD information shall be based on the product's use and impacts at the construction works level. In general, EPDs may not be used for comparability purposes when not considered in a construction works context. Given this PCR ensures products meet the same functional requirements, comparability is permissible provided the information given for such comparison is transparent and the limitations of comparability explained.

When comparing EPDs created using this PCR, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to different results for upstream or downstream of the life cycle stages declared.

Table 8 and Table 9 provide resource indicator results for steel framing studs, track, and accessories for each facility. Table 10 provides resource indicator results based on the production-weighted average of the two facilities.

Table 9. Resource use and waste flows for the declared unit of steel framing studs, track, and accessories fabricated by SCAFCO for the Spokane, WA facility. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits.

Parameter	Life cycle stage			
	A1	A2	A3	Total (A1-A3)
Resources				
RPR _E (MJ)	1,170	659	1,310	3,140
	37%	21%	42%	100%
RPR _M (MJ)	0.00	0.00	637	637
	0%	0%	100%	100%
NRPR _E (MJ)	20,400	1,600	502	22,500
	91%	7%	2%	100%
NRPR _M (MJ)	482	0.00	0.00	482
	100%	0%	0%	100%
SM (kg)	563	0.00	0.00	563
	100%	0%	0%	100%
RSF (MJ)	0.00	0.00	0.00	0.00
NRSF (MJ)	0.00	0.00	0.00	0.00
RE (MJ)	0.00	0.00	0.00	0.00
FW (m ³)	15.9	1.58	0.368	17.9
	86%	9%	6%	100%
Wastes				
HWD (kg)	4.98	0.00	1.62x10 ⁻²	4.99
	100%	0%	0%	100%
NHWD (kg)	2.57	0.00	0.00	2.57
	100%	0%	0%	100%
HLRW (kg)	5.89x10 ⁻⁵	0.00	0.00	5.89x10 ⁻⁵
	100%	0%	0%	100%
ILLRW (kg)	5.37x10 ⁻⁴	0.00	0.00	5.37x10 ⁻⁴
	100%	0%	0%	100%
CRU (kg)	0.00	0.00	0.00	0.00
MR (kg)	0.00	0.00	35.1	35.1
	0%	0%	100%	100%
MER (kg)	0.00	0.00	0.00	0.00
EE (MJ)	0.00	0.00	0.00	0.00

Table 10. Resource use and waste flows for the declared unit of steel framing studs, track, and accessories fabricated by SCAFCO for the Stockton, CA facility. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits.

Parameter	Life cycle stage			
	A1	A2	A3	Total (A1-A3)
Resources				
RPR _E (MJ)	671	691	1,240	2,600
	26%	27%	48%	100%
RPR _M (MJ)	0.00	0.00	597	597
	0%	0%	100%	100%
NRPR _E (MJ)	17,300	1,680	406	19,400
	89%	9%	2%	100%
NRPR _M (MJ)	908	0.00	0.00	908
	100%	0%	0%	100%
SM (kg)	700	0.00	0.00	700
	100%	0%	0%	100%
RSF (MJ)	0.00	0.00	0.00	0.00
NRSF (MJ)	0.00	0.00	0.00	0.00
RE (MJ)	0.00	0.00	0.00	0.00
FW (m ³)	15.1	1.66	0.264	17.0
	89%	10%	2%	100%
Wastes				
HWD (kg)	6.39	0.00	4.70x10 ⁻²	6.44
	99%	0%	1%	100%
NHWD (kg)	3.55	0.00	0.00	3.55
	100%	0%	0%	100%
HLRW (kg)	8.04x10 ⁻⁵	0.00	0.00	8.04x10 ⁻⁵
	100%	0%	0%	100%
ILLRW (kg)	7.22x10 ⁻⁴	0.00	0.00	7.22x10 ⁻⁴
	100%	0%	0%	100%
CRU (kg)	0.00	0.00	0.00	0.00
MR (kg)	8.91	0.00	35.4	44.3
	20%	0.00%	80%	100%
MER (kg)	0.00	0.00	0.00	0.00
EE (MJ)	0.00	0.00	0.00	0.00

Table 11. Production-weighted average resource use and waste flows for the declared unit of steel framing studs, track, and accessories fabricated by SCAFCO at the Spokane, WA and Stockton, CA facilities. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits.

Parameter	Life cycle stage			
	A1	A2	A3	Total (A1-A3)
Resources				
RPR _E (MJ)	837	680	1,260	2,780
	30%	24%	45%	100%
RPR _M (MJ)	0.00	0.00	610	610
	0%	0%	100%	100%
NRPR _E (MJ)	18,300	1,650	439	20,400
	90%	8%	2%	100%
NRPR _M (MJ)	766	0.00	0.00	766
	100%	0%	0%	100%
SM (kg)	654	0.00	0.00	654
	100%	0%	0%	100%
RSF (MJ)	0.00	0.00	0.00	0.00
NRSF (MJ)	0.00	0.00	0.00	0.00
RE (MJ)	0.00	0.00	0.00	0.00
FW (m ³)	15.3	1.63	0.524	17.5
	88%	9%	3%	100%
Wastes				
HWD (kg)	5.92	0.00	3.68x10 ⁻²	5.96
	99%	0%	1%	100%
NHWD (kg)	3.23	0.00	0.00	3.23
	100%	0%	0%	100%
HLRW (kg)	7.36x10 ⁻⁵	0.00	0.00	7.36x10 ⁻⁵
	100%	0%	0%	100%
ILLRW (kg)	6.61x10 ⁻⁴	0.00	0.00	6.61x10 ⁻⁴
	100%	0%	0%	100%
CRU (kg)	0.00	0.00	0.00	0.00
MR (kg)	5.95	0.00	35.3	41.2
	14%	0%	86%	100%
MER (kg)	0.00	0.00	0.00	0.00
EE (MJ)	0.00	0.00	0.00	0.00

The PCR requires the calculation of biogenic carbon emissions and removals. Biogenic carbon removals may be included in the packaging; however, per ACLCA guidance the supplier information is insufficient to determine presence of biogenic emissions in packaging materials.

6. LCA: Interpretation

The main contributing life cycle stage to indicator results for many of the impact category indicators assessed are the upstream steelmaking and coating in A1, while the second-greatest contributing module being upstream transportation representing the transport of the master coil to the facilities in A2. The exception to this is Eutrophication at the Spokane facility, for which upstream transportation (A2) is the primary contributing life cycle stage.

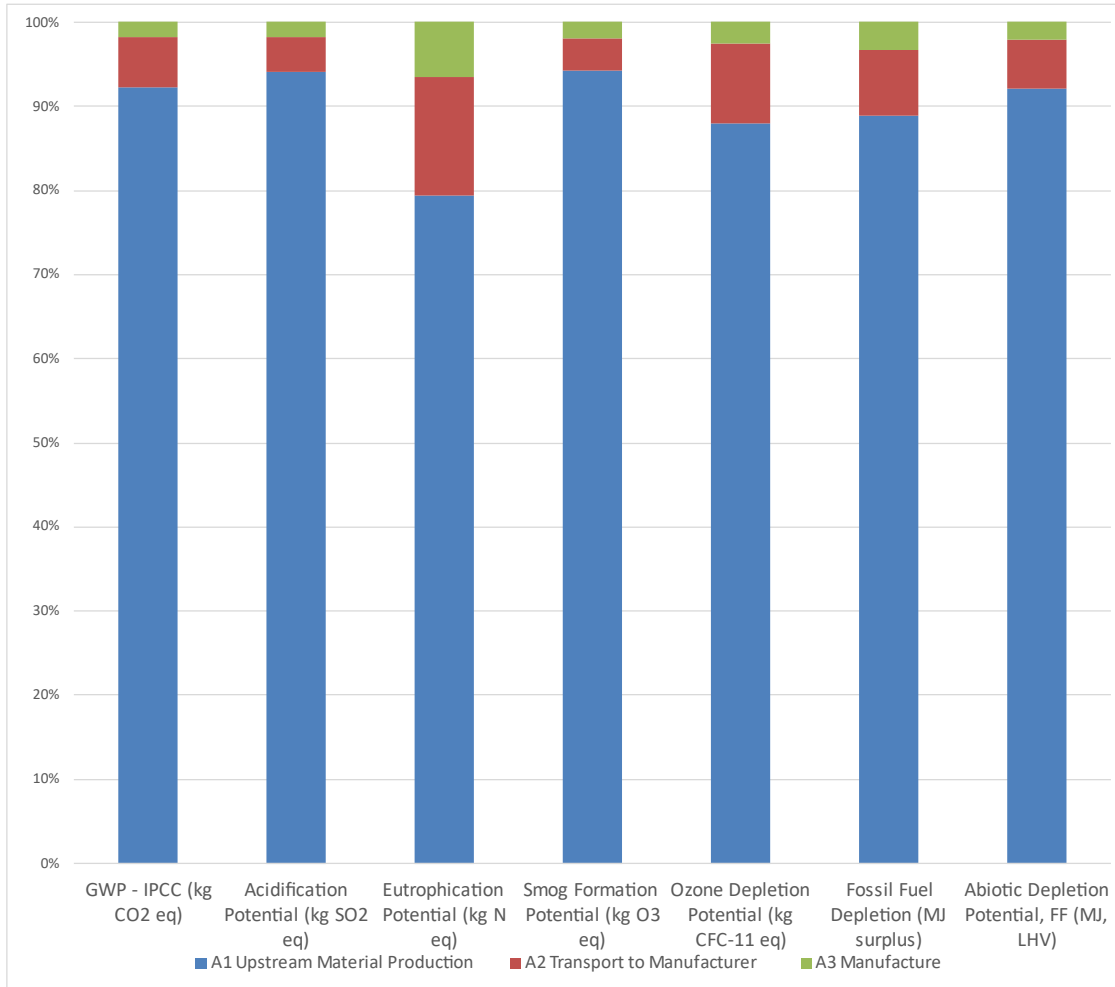


Figure 2. Contribution analysis for the declared unit of the SCAFCO steel framing studs, track, and accessories at the Spokane, WA facility (IPCC, TRACI 2.1, CML-IA).

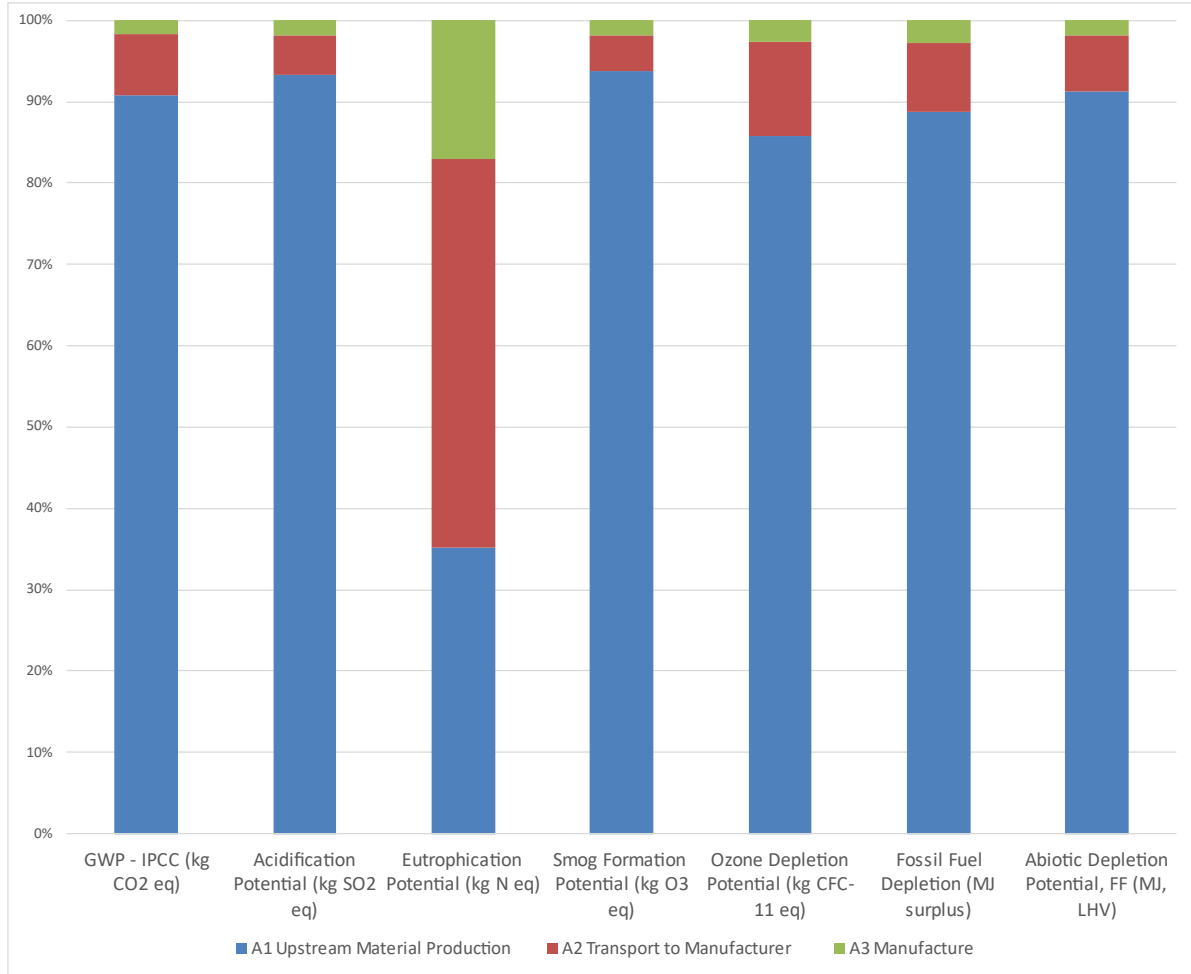


Figure 3. Contribution analysis for the declared unit of the SCAFCO steel framing studs, track, and accessories at the Spokane, WA facility (IPCC, TRACI 2.1, CML-IA).

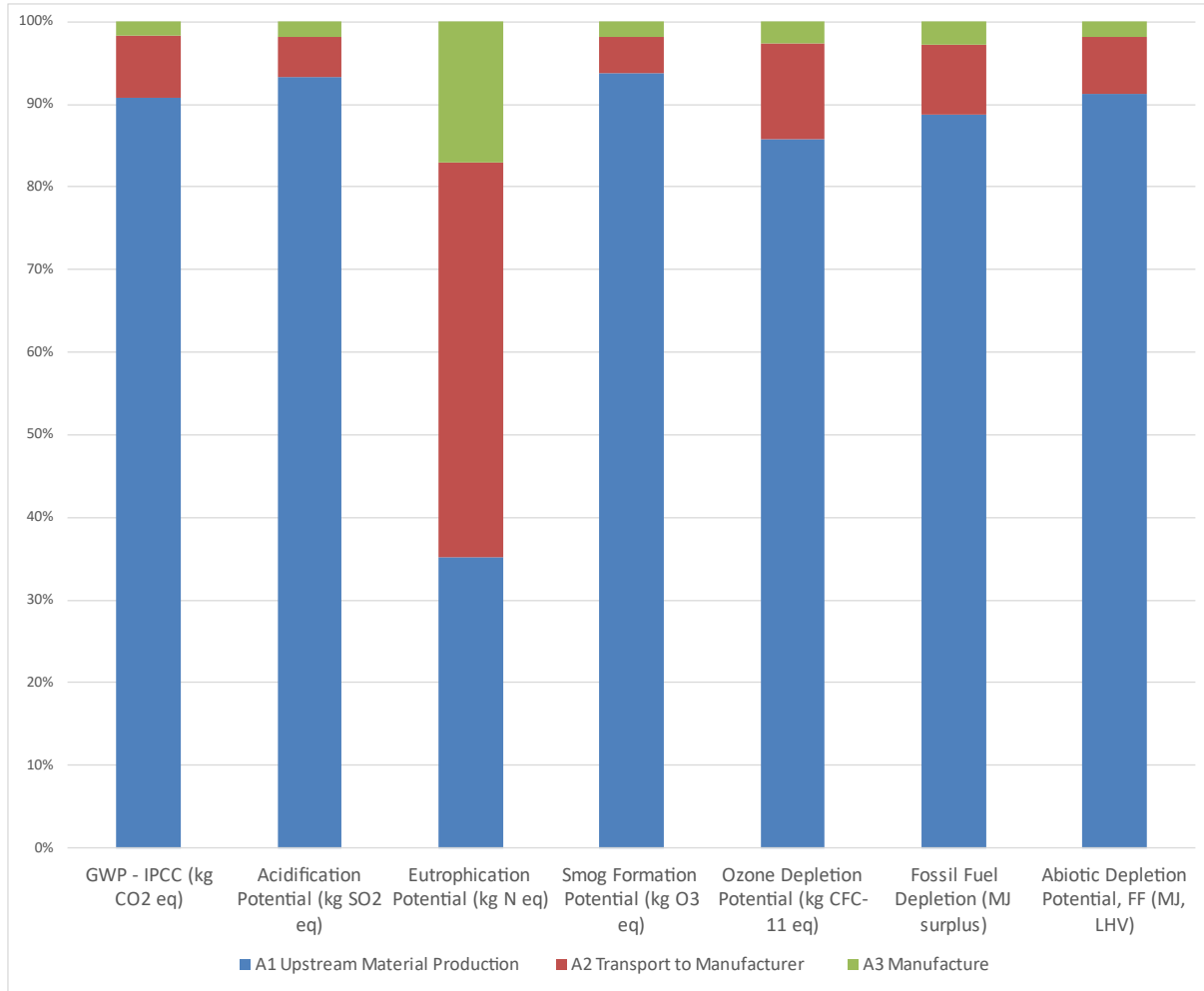


Figure 4. Contribution analysis for the production weighted average of steel framing studs, track, and accessories at both SCAFCO facilities (IPCC, TRACI 2.1, CML-IA).

Limitations

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. See Section 3.8 of the Part B Designated Steel Construction Product PCR for additional EPD comparability guidelines.

7. References

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For more information, contact:



SCAFCO Steel Study Company
2800 E. Main Ave, Spokane, WA 99220
www.SCAFCO.com
Technical@SCAFCO.com
509.343.9000



SCS Global Services
2000 Powell Street, Ste. 600, Emeryville, CA 94608 USA
Main +1.510.452.8000 | fax +1.510.452.8001