RESTEEL

REINFORCING STEEL WIRE MESH

Re-Steel Supply Co, Inc.
MJ Associates

Environmental Product Declaration for Uncoated Fabricated Rebar

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An Environmental Product Declaration

In accordance with ISO 14025 and 21930

About this EPD

This is a Type III facility and product specific environmental product declaration (EPD) for uncoated fabricated rebar as produced by Re-Steel's MJ Associates fabrication facility located in Philadelphia, PA. The results of the underlying Life Cycle Assessment (LCA) are computed using SimaPro 10.2.0.1 (1). This EPD and underlying LCA have been verified to conform to ISO 21930:2017 (2), Smart EPD Part A PCR (3), Smart EPD Part B PCR for Designated Steel Construction Products (4), as well as ISO 14020:2000 (5), and ISO 14040/44:2006 LCA standards (6), (7).

This EPD is certified by ASTM to conform to ISO 21930:2017 and Smart EPD Part A and Part B PCRs (3), (4), as well as to the requirements of ISO 14020, ISO 14025 (8), and ASTM International's General Program Instructions (9). This EPD is intended for business-to-business audiences.

General Summary

EPD Commissioner and Owner	**Re-Steel Supply Co.** 2000 Eddystone Industrial Park Eddystone, PA. 19022 Re-Steel's MJ Associates fabrication facility has provided LCI and meta data in support of this EPD for the 2025 reference year. *The owner of the declaration is liable for the underlying information and evidence*.
Facility Information	**MJ Associates, Inc.** 798 East Vanago Street Philadelphia, PA. 19134
Product Description & Applicability	Rebar is used as a tension device in reinforced concrete and reinforced masonry structures to strengthen and hold the concrete in tension. Rebar's surface is often patterned to form a better bond with the concrete.
Product Category Rules (PCR)	Smart EPD (2025) Part A Product Category Rules for Building and Construction Products and Services Version 1.2. Standard 1000. Published March 14, 2025. www.smartepd.com. Smart EPD Part B Product Category Rules for Designated Steel Construction Products. Version 3.0. Standard 1000-008. Published April 3, 2025. www.smartepd.com.
Date of Issue & Validity Period	August 19th, 2026 – 5 years
Declared Unit	1 metric ton of fabricated carbon-steel and low-alloy uncoated rebar

LCA Databases Used	Ecoinvent 3.11, EN15804, U. April 2025 Industry Data 2.0
LCIA Methodologies Used	IPCC AR6, 2021 TRACI 2.2, 2024 CML v4.8, 2016 CED v1.01, 2024

EPD and Project Report Information

Program Operator	ASTM International
Declaration Number	EPD 1238
Declaration Type	Cradle-to-gate (modules A1 to A3). Facility and product specific
Applicable Regions	North America
Content of the Declaration	This declaration follows Smart EPD Part A and Part B PCR Section 9; EPD Content (3), (4).

This EPD was independently verified by ASTM in accordance with ISO 14025 and the reference PCR: Internal External X	Tim Brooke ASTM International 100 Barr Harbor Drive PO Box C700 West Conshohocken PA 19428-2959, USA cert@astm.org	Thomas P. Gloria, PhD Industrial Ecology Consultants 35 Bracebridge Rd. Newton, MA 02459-1728 t.gloria@industrial-ecology.com

Notes	The EPD results reported herein are computed SimaPro version 10.2.0.1 (1), along with relevant background datasets from ecoinvent 3.11 and Industry Data 2.0.
Project Report	A Manufacturer Specific Cradle-to-Gate Life Cycle Assessment of Re-Steel's Fabricated Carbon-Steel and Low-Alloy Uncoated Reinforcing Bar (Rebar). June 2026.
LCA Report and EPD Prepared by: Athena Sustainable Materials Institute	Athena Sustainable Materials Institute 280 Albert Street, Suite 404 Ottawa, Ontario, Canada K1P 5G8 info@athenasmi.org www.athenasmi.org

Product Description

Rebar, also known as reinforcing steel or reinforcing bar (UNSPSC code 30103623), is used as a tension device in reinforced concrete and reinforced masonry structures to strengthen and hold the concrete in tension. Rebar's surface is often patterned to form a better bond with the concrete.

For applications where corrosion resistance is not required, uncoated rebar is commonly used. Epoxy-coated, zinc-coated, and stainless-steel rebar products can be used in locations where corrosion resistance is required.

The Concrete Reinforcing Steel Institute (CRSI) defines uncoated carbon steel reinforcing bars as reinforcing steel bars produced to ASTM A615, A706, or A996 specifications.

The most common steel rebar used in concrete products are manufactured in compliance with ASTM A615. ASTM A615 states that welding of A615 steel should be approached with caution since no specific provisions have been included to enhance its weldability. Reinforcing bars conforming to ASTM A706 specifications are recommended for use in seismic-resistant reinforced concrete structures that require controlled tensile properties or for applications that involve extensive welding.

Figure 1 below provides a visual representation of steel reinforcing bar (rebar).

Figure 1: Steel Reinforcing Bar (Rebar)

Each individual reinforcing bar is manufactured with a series of individual markings (10):

- The first letter or symbol identifies the producing mill
- The next marking is the bar size
- The third marking symbol designates the type of reinforcing steel – usually either "S" for carbon-steel (ASTM A615) or "W" for low-alloy steel (ASTM A706)
- Finally there will be a grade marking (60, 75, 80, 100, 120) or by the addition of one line (60), two lines (75), three lines (80, 100), or four lines (120) that must be at least five deformations long.

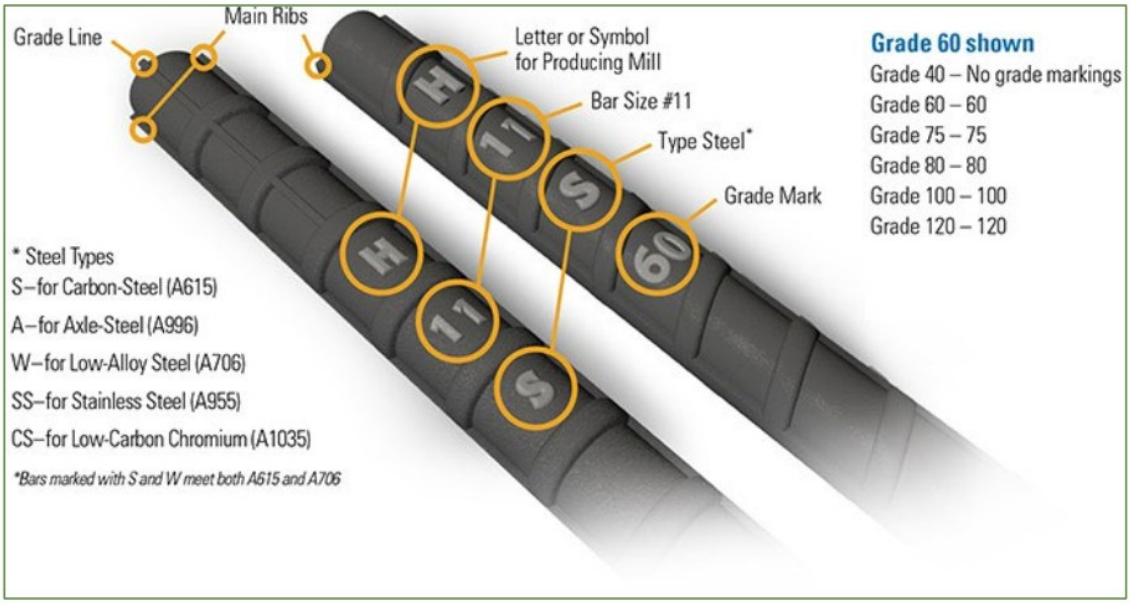


Figure 2: ASTM Bar Marking Sequence

Re-Steel produces uncoated fabricated rebar in conformance with both ASTM A615 and A706. Carbon-steel bar (A615) accounts for the majority of rebar fabricated across all facilities. Low-alloy steel bar (A706) accounts for less than 1% of MJ Associates' total production during the 2025 reference year

Product Material Composition and Relevant Standards

The material content of raw rebar stock will vary slightly from batch to batch and from supplier to supplier. In general, the steel will contain around 97% recycled iron, < 2% Manganese, <1.5% Copper, <0.9% Carbon, and a total of 1.5% or less of Nickel, Silicon, Sulfur, Tin, Phosphorus, and Vanadium. Re-Steel only purchases raw rebar stock from domestic suppliers operating electric arc furnaces (EAF) using nearly 100% pre- and post-consumer scrap steel as feedstock sourced within the United States without the need for a pure iron source in the production of raw rebar stock.

Applicable product standards for Re-Steel's uncoated fabricated include:

- ASTM A615/A615M-22 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
- ASTM A706/A706M-26 – Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement

Declared Unit

The declared unit is defined in Smart EPD Part B PCR Section 7.1.3 (4) as one metric ton (1,000 kg) of uncoated fabricated steel rebar.

System Boundary

This is a cradle-to-gate EPD covering the production stage (A1-A3) as depicted in the figure below. The production stage includes extraction of raw materials (cradle) through the manufacture and transport of fabricated rebar ready for shipment (gate).

As outlined in Section 5.2.1 of Smart EPD Part B PCR (4), this facility-specific EPD is categorized as Option 3A (Fabrication): Fabrication Process.

A1, Extraction and upstream production
This information module reports the overage rate, calculated as the percentage of additional mill or manufactured product material required to output a declared unit of fabricated steel expressed to three significant digits.

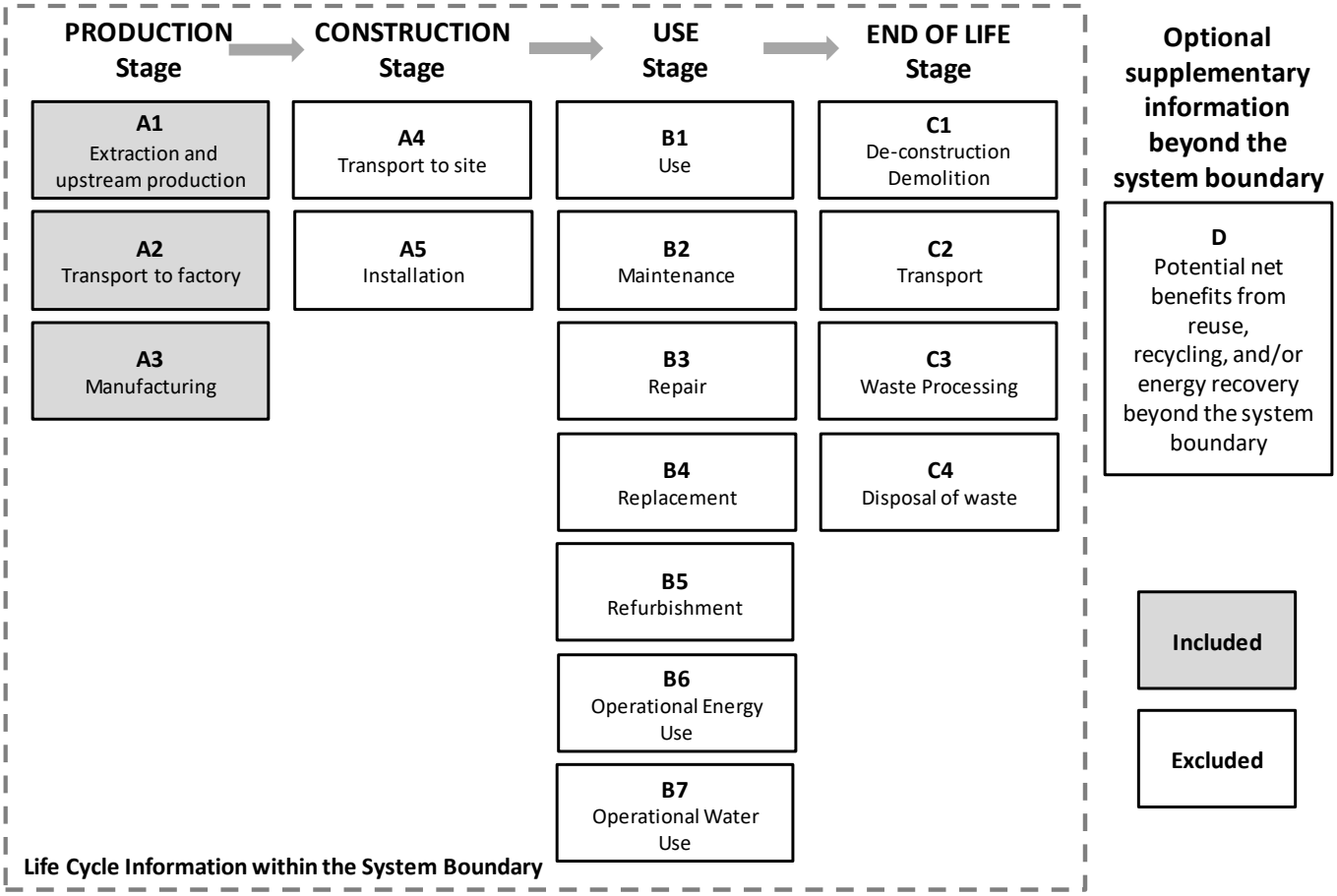
Annex A documents the A1 impacts of manufacturing utilizing EPDs published from Re-Steel's suppliers of unfabricated rebar.

A2, Transport to factory
This information module includes transport to the fabrication facility from mill facility or manufacturer's location accordingly. Empty backhauls are accounted for as specified in Smart EPD Part B PCR Section 7.1.7.2.3 (4).

A3, Manufacturing

This information module covers fabrication operations, and includes the following:

- A3, fabrication of uncoated rebar (cutting, bending, threading, etc.)
- A3, cradle-to-gate production of *ancillary materials* (lubricants, process aids);
- A3, cradle-to-gate production of *shipping and packaging materials*;
- A3, cradle-to-gate generation of *electricity, steam and heat* used in manufacturing;
- A3, cradle-to-gate *fuel supply* for mobile plant support equipment (diesel, gasoline, and propane) used in manufacturing, including on-site fuel combustion;
- A3, waste management from manufacturing packaging and manufacturing wastage including mass-weighted average transportation data up to the recycler or disposal.



Items *excluded* from the system boundary include:

- Production, manufacture, and construction of manufacturing capital goods and infrastructure,
- Production and manufacture of production equipment, delivery vehicles, and laboratory equipment,
- Personnel-related activities (travel, furniture, and office supplies),
- Energy and water use related to company management and sales activities that may be located either within the factory site or at another location.

Cut-off Criteria
The cut-off criteria per ISO 21930, Section 7.1.8 (2) have been followed. Per ISO 21930, 7.1.8, all input/output data required were collected and included in the LCI modelling. No substances with hazardous and toxic properties that pose a concern for human health and/or the environment were identified in the framework of this EPD.

Data Collection
Gate-to-gate input/output flow data were collected for the following processes from Re-Steel's MJ Associates fabrication facility for the 2025 calendar year:

- Facility operations (fuel and electricity use, waste, and total production)
- Sources of upstream unfabricated rebar
- Raw material input and waste output transport by mode and distance

Allocation Rules

The allocation rules generally conform to ISO 14044 section 4.3.4.1 and 4.3.4.2 (7) and ISO 21930 (2) section 7.2.5 Allocation for co-products.

As specified in ISO 21930, Section 7.2.4 (2), consistent allocation procedures shall be uniformly applied to similar inputs and outputs of the system under consideration. For example, the approaches of allocation to co-products or to secondary materials crossing the system boundary between product systems should use the same procedure used for co-products or to secondary material flows entering the product system.

Re-Steel facilities manufacture a wide range of uncoated fabricated rebar sizes and grades. Inputs and outputs were allocated over the total outputs of uncoated fabricated rebar on a "mass" basis. LCI modelling accounts for the plant specific fabrication yields in accordance with ISO 14044, 4.3.4.2 (7).

It is also noted that no burden or credit is allocated to the fabrication scrap (burden free) for the uncoated fabricated rebar product system. In addition, allocation related to transport is based on the mass of transported inputs and outputs.

Data Quality Requirements and Assessment

Data Quality Requirements	Description
Technology Coverage	Data represents the prevailing technology in use in North America. Whenever available, for all upstream and core material and processes, North American typical or average industry LCI datasets were utilized. Technological representativeness is characterized as "high".
Geographic Coverage	The geographic region considered is North America. *Geographical representativeness is characterized as "high".*

Time Coverage	Activity data are representative as of 2025. The most appropriate LCI datasets were used as found in the ecoinvent v.3.11 databases. *Temporal representativeness is characterized as "high".*
Completeness	All relevant, specific processes, including inputs (raw materials, energy and ancillary materials) and outputs (emissions and production volume) were considered and modeled in the framework of this EPD project. The relevant background materials and processes were taken from ecoinvent v 3.11 and Industry Data 2.0 LCI databases and modeled in SimaPro software v.10.2.0.1, 2025. The completeness of the chains in terms of process steps has been rigorously assessed.
Reproducibility	Internal reproducibility is possible since the data and the models are stored and available in *Re-Steel LCI database* developed in SimaPro, 2025. External reproducibility is not possible as the source LCI data and subsequent LCA background report is confidential.
Transparency	Activity and background LCI datasets are transparently documented in Annex A of the project report, including data sources.
Uncertainty	A sensitivity check was conducted to assess the reliability of the EPD results and conclusions by determining how they are affected by uncertainties in the data or assumptions on calculation of LCIA and energy indicator results. The results of the sensitivity analysis are documented in the project report.

Life Cycle Impact Assessment Results

This section summarizes the life cycle impact assessment (LCIA) results including resource use and waste generated metrics based on the cradle-to-gate life cycle inventory inputs and outputs analysis. The results are calculated based on one metric ton of uncoated fabricated steel rebar fabricated at the MJ Associates fabrication facility. It should be noted that LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks (5), (7).

Table 1: LCIA Category and Inventory Indicators

Impact Category and Inventory Indicators	Abbreviation	Unit	Source of the characterization method
Global warming potential – total	GWP 100-total	kg CO_2 eq.	Environmental Footprint 3.1 (IPCC 2021, AR6)
Global warming potential – fossil	GWP 100-fossil	kg CO_2 eq.	Environmental Footprint 3.1 (IPCC 2021, AR6)
Global warming potential – biogenic	GWP 100-bio	kg CO_2 eq.	Environmental Footprint 3.1 (IPCC 2021, AR6)
Global warming potential – land use and land use change	GWP 100-luluc	kg CO_2 eq.	Environmental Footprint 3.1 (IPCC 2021, AR6)
Acidification potential	AP	kg SO_2 eq.	TRACI 2.2 2024
Eutrophication potential, freshwater	EP-f	kg P eq.	TRACI 2.2 2024
Eutrophication potential, marine	EP-m	kg N eq.	TRACI 2.2 2024
Smog formation potential	SFP	kg O_3 eq.	TRACI 2.2 2024
Depletion potential of the stratospheric ozone layer	ODP	kg CFC-11 eq.	TRACI 2.2 2024/WMO:2003
Abiotic depletion potential, elements	ADP_e	kg Sb eq.	CML-baseline, v4.8 2016
Abiotic depletion potential, fossil	ADP_f	MJ, LHV	CML-baseline, v4.8 2016
Renewable primary resources used as energy carrier (fuel)	RPR_E	MJ, LHV	Cumulative Energy Demand (CED) V1.01, 2024
Renewable primary resources with energy content used as material	RPR_M	MJ, LHV	Inventory
Total use of renewable primary resource with energy content	RPR_T	MJ, LHV	Inventory
Non-renewable primary resources used as an energy carrier (fuel)	$NRPR_E$	MJ, LHV	Cumulative Energy Demand (CED) V1.01, 2024 & Inventory
Non-renewable primary resources with energy content used as material	$NRPR_M$	MJ, LHV	Inventory
Total use of non-renewable primary resource with energy content	$NRPR_T$	MJ, LHV	Cumulative Energy Demand (CED) V1.01, 2024 & Inventory
Secondary material	SM	kg	Inventory
Renewable secondary fuels	RSF	MJ, LHV	Inventory
Non-renewable secondary fuels	NRSF	MJ, LHV	Inventory
Recovered energy	RE	MJ, LHV	Inventory
Consumption of freshwater	FW	m^3	Inventory
Hazardous waste disposed	HWD	kg	Inventory
Non-hazardous waste disposed	NHWD	kg	Inventory
High level radioactive waste, conditioned, to final repository	HLRW	kg	Inventory
Intermediate and low level radioactive waste, conditioned, to final repository	ILLRW	kg	Inventory
Components for re-use	CRU	kg	Inventory
Materials for recycling	MR	kg	Inventory
Materials for energy recovery	MER	kg	Inventory
Exported energy	EE	MJ, LHV	Inventory
Biogenic Carbon Removal from Packaging	BCRK	kg CO_2	Inventory
Biogenic Carbon Emission from Packaging	BCEK	kg CO_2	Inventory

Table 2: Production Stage EPD Results (A1 to A3 Total) – 1 metric ton of uncoated fabricated rebar – Re-Steel – MJ Associates

Impact category and inventory indicators	Unit	A1	A2	A3
Global warming potential – total	kg CO_2 eq	1.47%	15.2	26.4
Global warming potential – fossil	kg CO_2 eq	1.47%	15.2	26.4
Global warming potential – biogenic	kg CO_2 eq	1.47%	5.30E-04	6.54E-03
Global warming potential – land use and land use change	kg CO_2 eq	1.47%	3.63E-04	1.46E-02
Acidification potential	kg SO_2 eq	1.47%	7.52E-02	9.92E-02
Eutrophication potential, freshwater	kg P eq	1.47%	3.90E-05	4.93E-03
Eutrophication potential, marine	kg N eq.	1.47%	1.97E-02	1.73E-02
Smog formation potential	kg O_3 eq	1.47%	2.35	1.98
Depletion potential of the stratospheric ozone layer	kg CFC-11 eq	1.47%	3.00E-07	1.38E-07
Abiotic depletion potential, elements	kg Sb eq	1.47%	4.06E-07	4.76E-06
Abiotic depletion potential, fossil	MJ, LHV	1.47%	204	310
Renewable primary resources used as energy carrier (fuel) [1)]	MJ, LHV	1.47%	0.45	185
Renewable primary resources with energy content used as material[1)]	MJ, LHV	1.47%	-	-
Total use of renewable primary resource with energy content[1)]	MJ, LHV	1.47%	0.45	185
Non-renewable primary resources used as an energy carrier (fuel) [1)]	MJ, LHV	1.47%	204	626
Non-renewable primary resources with energy content used as material[1)]	MJ, LHV	1.47%	-	-
Total use of non-renewable primary resource with energy content[1)]	MJ, LHV	1.47%	204	626
Secondary material[1)]	kg	1.47%	9.72E-05	2.02E-01
Renewable secondary fuels[1)]	MJ, LHV	1.47%	7.90E-06	5.83E-05
Non-renewable secondary fuels[1)]	MJ, LHV	1.47%	-	-
Recovered energy[1)]	MJ, LHV	1.47%	1.75E-02	0.49
Consumption of freshwater [1)]	m^3	1.47%	3.43E-03	0.54
Hazardous waste disposed[1)]	kg	1.47%	1.16E-02	1.48
Non-hazardous waste disposed[1)]	kg	1.47%	0.64	54.1
High level radioactive waste, conditioned, to final repository[1) 2)]	kg	1.47%	2.82E-06	4.05E-04
Intermediate and low level radioactive waste, conditioned, to final repository[1) 2)]	kg	1.47%	7.82E-06	1.67E-03
Components for re-use[1)]	kg	1.47%	-	-
Materials for recycling[1)]	kg	1.47%	4.62E-06	14.7
Materials for energy recovery[1)]	kg	1.47%	3.79E-08	6.77E-07
Exported energy[1)]	MJ, LHV	1.47%	1.75E-02	0.49
Biogenic carbon removal from packaging	kg CO_2	1.47%	0	-9.13
Biogenic carbon emission from packaging	kg CO_2	1.47%	0	9.13

Notes:

[1)] Calculated as per ACLCA ISO 21930 Guidance (11). Ecoinvent 3.11, EN15804, U database has been used for secondary datasets, which supports the calculation of inventory metrics from secondary data sources. Therefore, inventory metrics are based on primary and secondary data sources.

[2)] It should be noted that the foreground system (A3 manufacturing process) does not generate any high-level radioactive waste or low/intermediate level radioactive waste. Radioactive waste is primarily generated from electricity production. High level radioactive waste consists mainly of spent fuel from reactors. Low/intermediate level radioactive waste is primarily generated from routine facility maintenance and operation (2).

Limitations of Comparability

Environmental declarations from different programs may not be comparable (8). EPDs are comparable only if they comply with ISO 21930, 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 (2).

As specified in Smart EPD Part B PCR (4), EPDs of steel products with different intended functionalities shall be compared only within the same product type. For example, reinforcing steel EPDs shall not be compared to HSS steel EPDs.

It is recognized that by following the typical ISO 21930:2017 definitions of module A1, A2 and A3 for a specific production facility, inconsistencies will occur in classifying individual processes as either A1 or A3 based on the scope of the operations that take place at a given facility. Care must be taken not to compare A1, A2 or A3 on an individual basis for a given product from various mill producers, but, instead on the aggregated total of A1, A2 and A3. Separate A1, A2 and A3 values are provided for a better understanding of the processes taking place at a given facility and a greater level of transparency.

Construction product environmental impact results provide a sufficient basis for comparison only when considered in the context of the construction works project. In all cases of comparing construction products, the principle that the basis for comparison of the assessment is the construction works level shall be maintained by ensuring that the same functional requirements are met and the criteria in ISO 21930:2017 Section 5.5 “Comparability of EPDs for construction products” are satisfied.

EPDs published using this PCR do not include post-fabrication processes, including, but not limited to, epoxy coating, painting, and galvanization.

The reported fabrication impacts are based on average primary data collected from the facility over the course of one year. Actual impacts for fabricated products vary depending on the particular project and its fabrication demands.

LCA Interpretation

Module A2 Transportation is typically the largest contributor to the overall potential environmental impacts. The A3 Manufacturing environmental impact is driven by on-site electricity and fuel usage during fabrication.

Additional Environmental Information

All Re-Steel uncoated fabricated rebar products are manufactured from EAF production route (recycled scrap steel) sourced within the United States.

Re-Steel fabrication scrap is 100% recycled back to US mill shops.

Table 3 below indicates the recycled content for Re-Steel's MJ Associates facility for the 2025 reference year. Re-Steel's facility specific recycled content data are calculated based on the recycled content data provided by the unfabricated steel rebar suppliers for the 2025 reference year.

Table 3: Pre- and post-consumer recycled content, 2025 reference year

Facility	Location	Recycled Content, 2025 Reference Year		
		Pre-Consumer	Post-Consumer	Total
MJ Associates, Inc.	Philadelphia, PA	16.7%	80.8%	97.6%

Declaration Type

This EPD is defined as a facility and product specific EPD.

EPD Explanatory Material

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

ASTM International
Environmental Product Declarations
100 Barr Harbor Drive,
West Conshohocken, PA, USA.
19428-2959
www.astm.org

References

1. PRé Sustainability. *SimaPro LCA Software. Version 10.2.0.1.* 2025.

2. ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services.

3. Smart EPD (2025) Part A Product Category Rules for Building and Construction Products and Services Version 1.2. Standard 1000. Published March 14, 2025. www.smartepd.com.

4. Smart EPD Part B Product Category Rules for Designated Steel Construction Products. Version 3.0. Standard 1000-008. Published April 3, 2025. www.smartepd.com.

5. ISO 14020:2000 Environmental labels and declarations.

6. ISO 14040:2006/Amd 1:2020 Environmental Management – Life Cycle Assessment – Principles and Framework.

7. ISO 14044/Amd1:2017/Amd2:2020 Environmental Management – Life Cycle Assessment – Requirements and guidelines.

8. ISO 14025: 2006 Environmental labeling and declarations - Type III environmental declarations - Principles and procedures.

9. ASTM Program Operator Rules. Version: 8.0, Revised April 2020.

10. Concrete Reinforcing Steel Institute. Reinforcing Basics - Bar Identification [Online]. https://www.crsi.org/reinforcing-basics/reinforcing-steel/bar-identification/.

11. ACLCA 2019, Guidance to Calculating Non-LCIA Inventory Metrics in Accordance with ISO 21930:2017. The American Centre for Life Cycle Assessment. May, 2019.

12. CMC. Unfabricated and Fabricated Steel Rebar. August 25, 2025. Smart EPD. Smart EPD-2025-086-0608-01.

13. Steel Dynamics, Inc. Steel Reinforcing Bar (Rebar) Environmental Product Declaration. October 15, 2025. ASTM International. EPD 1076.

14. Nucor Corporation. Steel Reinforcing Bar and Merchant Bar Products. June 24, 2022. UL Environment. 4790372675.101.1.

15. Concrete Steel Reinforcing Institute. Steel Reinforcement Bar Industry Average. September 20, 2022. ASTM International. EPD 362.

16. Smart EPD. Part A PCR Errata and Clarifications, v4. March 11, 2026.

Annex A – A1-A3 Production Stage Results Utilizing Supplier-Specific EPDs for A1 Impact

The results below are calculated utilizing EPDs published from Re-Steel MJ Associates' suppliers of unfabricated rebar. The A1 profile for the MJ Associates fabrication facility reflects a mass-weighted average of the upstream rebar suppliers from which the facility sourced material during the 2025 reference year. The EPDs utilized in the generation of the A1 results are as follows:

- CMC. Unfabricated and Fabricated Steel Rebar. August 25, 2025. Smart EPD. Smart EPD-2025-086-0608-01. (12)
- Steel Dynamics, Inc. Steel Reinforcing Bar (Rebar) Environmental Product Declaration. October 15, 2025. ASTM International. EPD 1076. (13)
- Nucor Corporation. Steel Reinforcing Bar and Merchant Bar Products. June 24, 2022. UL Environment. 4790372675.101.1. (14)

The Nucor and CMC EPDs noted above are corporate-average EPDs, and provide an average environmental profile covering all their facilities, except in the case of the GWP indicator, which has been reported separately for each facility. The A1 impact results below are based on facility-specific GWP, and corporate-average data for the remaining indicators.

Two of Re-Steel's suppliers (Nucor – Lexington, NC and SDI – Roanoke, VA) are not covered in the EPDs outlined above. In these cases, the Concrete Steel Reinforcing Institute's (CRSI) Industry Average EPD for Steel Reinforcement Bar (A1 impacts only) (15) are utilized.

The Nucor, CMC, and CRSI upstream EPDs utilize TRACI 2.1 methodology. In TRACI 2.2, eutrophication is separated into two impact categories, freshwater and marine, whereas TRACI 2.1 reports a single eutrophication metric that covers both. To enable the use of these upstream data, the conversion of TRACI 2.1 Eutrophication to TRACI 2.2 Eutrophication-marine and Eutrophication-freshwater has been performed in conformance with guidance provided by Smart EPD in their PCR Errata and Clarifications, v4 (16)

Table A1: Production Stage EPD Results (A1 to A3 Total) – 1 metric ton of uncoated fabricated rebar – Re-Steel MJ Associates

Impact category and inventory indicators	Unit	A1	A2	A3	A1-A3 Total
Global warming potential – total	kg CO_2 eq	645	15.2	26.4	686
Global warming potential – fossil	kg CO_2 eq	645	15.2	26.4	686
Global warming potential – biogenic	kg CO_2 eq	0	5.30E-04	6.54E-03	1.58E-02
Global warming potential – land use and land use change	kg CO_2 eq	0	3.63E-04	1.46E-02	1.99E-02
Acidification potential	kg SO_2 eq	1.21	7.52E-02	9.92E-02	1.38
Eutrophication potential, freshwater	kg P eq	9.89E-03	3.90E-05	4.93E-03	1.49E-02
Eutrophication potential, marine	kg N eq.	1.65E-02	1.97E-02	1.73E-02	5.35E-02
Smog formation potential	kg O_3 eq	19.4	2.35	1.98	23.8
Depletion potential of the stratospheric ozone layer	kg CFC-11 eq	1.64E-07	3.00E-07	1.38E-07	6.02E-07
Abiotic depletion potential, elements	kg Sb eq	0	4.06E-07	4.76E-06	5.17E-06
Abiotic depletion potential, fossil	MJ, LHV	7224	204	310	7738
Renewable primary resources used as energy carrier (fuel) [1)]	MJ, LHV	1426	0.45	185	1611
Renewable primary resources with energy content used as material[1)]	MJ, LHV	-	-	-	-
Total use of renewable primary resource with energy content[1)]	MJ, LHV	1426	0.45	185	1611
Non-renewable primary resources used as an energy carrier (fuel) [1)]	MJ, LHV	7853	204	626	8684
Non-renewable primary resources with energy content used as material[1)]	MJ, LHV	287	0	0	287
Total use of non-renewable primary resource with energy content[1)]	MJ, LHV	8141	204	626	8971
Secondary material[1)]	kg	1086	9.72E-05	0.20	1086
Renewable secondary fuels[1)]	MJ, LHV	0	7.90E-06	5.83E-05	6.62E-05
Non-renewable secondary fuels[1)]	MJ, LHV	-	-	-	-
Recovered energy[1)]	MJ, LHV	0	1.75E-02	0.49	0.51
Consumption of freshwater [1)]	m^3	2.98	3.43E-03	0.54	3.52
Hazardous waste disposed[1)]	kg	0.34	1.16E-02	1.48	1.83
Non-hazardous waste disposed[1)]	kg	10.3	0.64	54.15	65.1
High level radioactive waste, conditioned, to final repository[1) 2)]	kg	5.58E-04	2.82E-06	4.05E-04	9.66E-04
Intermediate and low level radioactive waste, conditioned, to final repository[1) 2)]	kg	0.33	7.82E-06	1.67E-03	0.33
Components for re-use[1)]	kg	-	-	-	-
Materials for recycling[1)]	kg	28.5	4.62E-06	14.7	43.2
Materials for energy recovery[1)]	kg	0	3.79E-08	6.77E-07	7.15E-07
Exported energy[1)]	MJ, LHV	0	1.75E-02	0.49	0.51
Biogenic carbon removal from packaging	kg CO_2	0	0	-9.13	-9.13
Biogenic carbon emission from packaging	kg CO_2	0	0	9.13	9.13