

## ENVIRONMENTAL PRODUCT DECLARATION

# COLD-FORMED STEEL FRAMING SYSTEMS

STRUCTURAL STUD AND TRACK, VIPERSTUD® AND VIPER-X™ INTERIOR FRAMING, PROX HEADER®, SUREBOARD®, SURE-SPAN® FLOOR JOIST FRAMING SYSTEM, CST, SLP-TRK®, FAS TRACK® 1000 SLOTTED TRACKS, USG SHAFTWALL CH/H-STUD STUDS AND TRACK



*CEMCO's Sure-Span® and cold-formed steel framing products installed in a mid-rise project in San Francisco, home to 5% of the world's LEED certified projects.*

*CEMCO produces a complete line of steel framing products in its four U.S. manufacturing facilities, primarily from American-made steel.*



**Steel Framing and Metal Lath**

California Expanded Metal Products Co., more commonly known as CEMCO®, is your premier source for steel framing products, metal lath products, and plastering accessories. All CEMCO products are made in the USA in one of our four state-of-the-art manufacturing facilities.

Steel, one of the world's most recycled materials, is the basis for all of CEMCO's products, which are manufactured from mill-certified hot-dip galvanized steel, giving the industry confidence that CEMCO's products are among the best choice for your green building needs.

For additional information, visit [www.cemcosteel.com](http://www.cemcosteel.com).



# ENVIRONMENTAL PRODUCT DECLARATION





Steel Framing and Metal Lath

Cold-Formed Steel Framing, Metal Lath and Accessories  
Cold-Formed Steel Framing Systems

According to ISO 14025 and ISO 21930:2007

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. 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, and the level of accuracy in estimation of effect differs for any particular product line and reported impact. Comparability: EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.



PROGRAM OPERATOR	UL Environment	
DECLARATION HOLDER	CEMCO	
DECLARATION NUMBER	4787356941.101.1	
DECLARED PRODUCT	Cold-Formed Steel Framing Systems	
REFERENCE PCR	SCS PCR for Designated Steel Construction Products v1 2015	
DATE OF ISSUE	July 13, 2016	
PERIOD OF VALIDITY	5 Years	
CONTENTS OF THE DECLARATION	Product definition and information about building physics Information about basic material and the material's origin Description of the product's manufacture Indication of product processing Information about the in-use conditions Life cycle assessment results Testing results and verifications	
The PCR review was conducted by:	PCR Review Panel	
	Chair: Thomas Gloria	
This declaration was independently verified in accordance with ISO 14025 by Underwriters Laboratories <input type="checkbox"/> INTERNAL <input checked="" type="checkbox"/> EXTERNAL		
	Wade Stout, UL Environment	
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:		
	Thomas Gloria, Industrial Ecology Consultants	

This EPD conforms with ISO 21930:2007

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## Product Definition

### Company Description

Since 1974, CEMCO® has taken a leadership role to provide you the most advanced products and systems for steel framing and metal lath construction. Delivering the safest products we can produce, such as the new Safety Edged® steel framing products, gives you safer handling of framing products on your trucks, in your yards, and on your jobsites. CEMCO® also manufactures FAS Track® 1000, DDA® angles, and slotted track for your fire-rated head-of-wall applications. Other innovations such as SureBoard® for shear-walls, Sure-Span® steel floor joists and the ProX Header® and ProX Rough-Opening framing systems are also available to help complete your environmentally responsible project. CEMCO's four state-of-the-art manufacturing facilities are located in City of Industry, CA (Metropolitan Los Angeles); Denver, CO; Ft. Worth, TX; and Pittsburg, CA (Oakland/San Francisco Bay Area).

### Product Description

The CEMCO® steel framing & metal lath products covered by this EPD are:

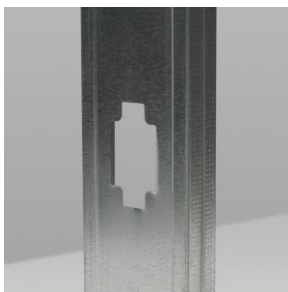
*Material & Coatings:*



#### **Structural Stud and Track (ICC-ES ESR 3016)**

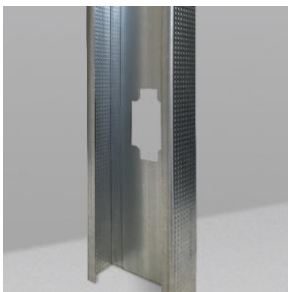
- Manufactured for the use in curtain wall, load-bearing, rough-opening & ceiling/floor/roof applications
- Available in typical c-shaped sections ranging in thickness from 33 mils to 118 mils

**CEMCO®**  
*uses only hot-dip  
galvanized steel*



#### **ViperStud® Interior Framing (ICC-ES ESR 2620)**

- Proprietary interior framing system using high-strength steel to increase overall performance
- Available in c-shaped sections ranging in thickness from 15 mils to 33 mils



#### **Viper-X™ Interior Framing (IAPMO ER 0524)**

- Proprietary interior framing system using high-strength steel to increase overall performance
- Available in c-shaped sections ranging in thicknesses from 15 mils to 28 mils

**Environment**



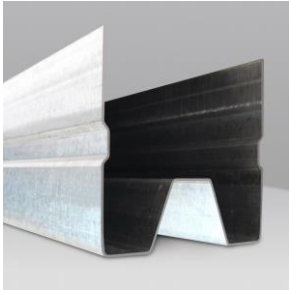
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## ProX Header® (IAPMO ER-0286)

- Proprietary header/rough-opening system designed to use less material and increase safety
- Available in sections ranging in thickness from 33 mils to 68 mils



## SureBoard® for Shear panels (IAPMO ER-0126)

- Steel sheet/gypsum sheathing product designed specifically for wall shear applications



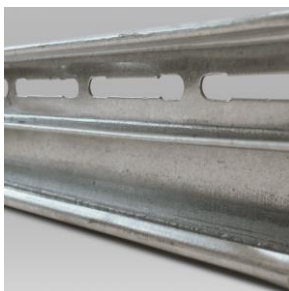
## Sure-Span® Floor Joist Framing System (ESR PENDING)

- Proprietary steel floor joist/roof rafter framing system with extra-large flared punch-outs for greater access of HVAC, MEP, and TELCOM conduits
- Available in proprietary c-shaped sections ranging in thickness from 43 mils to 97 mils



## CST, SLP-TRK®, and FAS Track® 1000 Brand Slotted Tracks (ICC-ES ESR 2012)

- Head of Wall top tracks designed for seismic and fire-abatement assemblies
- Available in c-shaped sections in thicknesses ranging from 33 mils to 68 mils



## USG SHAFTWALL Brand CH and H-Stud Studs and Track (AER 09038)

- USG's CH studs and J-Runners for shaftwall and stairwell applications
- USG's H-Stud and C-Runner for area separation wall assemblies



# ENVIRONMENTAL PRODUCT DECLARATION

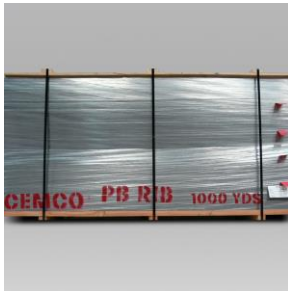


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Cold-Formed Steel Framing, Metal Lath and Accessories

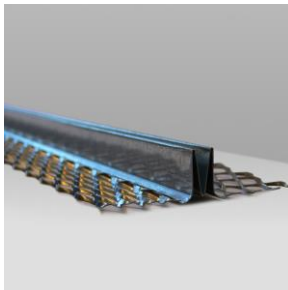
Cold-Formed Steel Framing Systems

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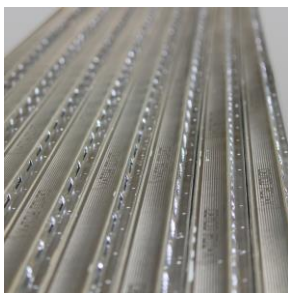
## Expanded Metal Lath Products (ICC-ES ESR 1623)

- Manufactured for the use in exterior and interior applications for 3-coat stucco assemblies
- Available in various flat, self-furred, ribbed, and paper-backed versions



## Plastering Accessories (ICC-ES ESR 1623\*)

- Various profiles used in conjunction with expanded metal lath products
- Products designed and manufactured for casing, corners, control joints, expansion joints, screeds, and weeps



## Drywall/Interior Accessories (ICC-ES ESR 3016\*)

- Product designed for use with interior non-load bearing stud framing systems
- Products include angles, drywall finishing trims, flat straps, furring channels, and resilient channels



## Connectors, Clips, and Channels (ICC-ES ESR 3016\*)

- Various connectors and clips used for connecting structural and non-structural steel framing components
- Products included are clip angles, corner angles/ledgers, diagonal tension strapping, gusset plates, slide clips, and u-shaped channels

\* Select products, see report for details



# ENVIRONMENTAL PRODUCT DECLARATION



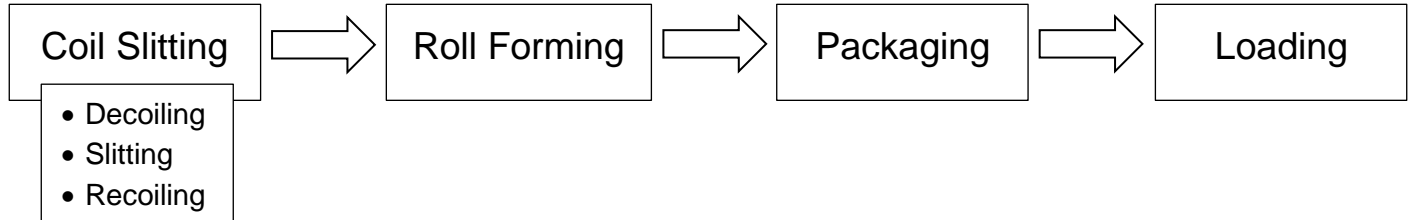
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## Manufacturing Steps

The manufacturing steps for CEMCO® steel framing systems are shown in the flow diagram below.



## Framing System Options

PRODUCT	SIZES	THICKNESS (MILS)
<b>Structural</b>	1-5/8" – 14" Stud & Track	33, 43, 54, 68, 97, 118
<b>ViperStud®</b>	1-5/8" – 6" Stud & Track	15, 20, 21, 30, 33
<b>Viper-X™</b>	1-5/8" – 6" Stud & Track	15, 19, 22, 28
<b>ProX Header®</b>	3-5/8" – 8" Headers & Inserts	33, 43, 54, 68
<b>SureBoard®</b>	48" x 96", 108", 120", or 144"	27
<b>Sure-Span®</b>	7-1/4" – 14" Joists and Rim-Track	33, 43, 54, 68, 97
<b>CST, SLP-TRK®, and FAS Track® 1000</b>	2-1/2" – 8" Slotted Tracks	33, 43, 54, 68
<b>USG SHAFTWALL Brand CH and H-Stud Studs and Track</b>	2-1/2" – 6" CH & H-Studs, J-Runner & C-Runner	18, 24, 33, 34
<b>Expanded Metal Lath</b>	27-1/2" x 48" or 96"	1.75, 2.5, or 3.4 lbs/yd <sup>2</sup>
<b>Plastering Accessories</b>	Various	18 through 33
<b>Drywall Interior Accessories</b>	Various	11 through 33
<b>Connectors, Clips, and Channels</b>	Various	33, 43, 54, 68, 97, 118



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## Application and Codes of Practice

### Material Specification (ASTM)

ViperStud® Nonstructural Framing Members and Accessories	A653/A1003
Viper-X™ Nonstructural Framing Members and Accessories	A653/A1003
Structural Framing Members and Accessories	A653/A1003
ProX Header® Framing Members and Accessories	A653/A1003
SureBoard®	A653/A1003
Sure-Span® Framing Members and Accessories	A653/A1003
CST, SLP-TRK® & FAS Track 1000® Slotted Tracks	A653/A1003
USG Shaftwall Members	A653/A1003
Expanded Metal Lath Products	A653/A1003
Plastering Accessories	A653/A1003

### Product Specification (ASTM)

Drywall Nonstructural Framing Members and Accessories	C645
Structural Framing Members and Accessories	C955
ProX Header® Framing Members and Accessories	C955
SureBoard®	C645
Sure-Span® Framing Members and Accessories	C955
CST, SLP-TRK® & FAS Track 1000® Slotted Tracks	C645
USG Shaftwall Members	C645
Expanded Metal Lath Products	C847
Plastering Accessories	C1047

### Coating Specification (ASTM)\*

ViperStud® Nonstructural Framing Members and Accessories	A653/A924/A1003
Viper-X™ Nonstructural Framing Members and Accessories	A653/A924/A1003
Structural Framing Members and Accessories	A653/A924/A1003
ProX Header® Framing Members and Accessories	A653/A924/A1003
SureBoard®	A653/A924
Sure-Span® Framing Members and Accessories	A653/A924/A1003
CST, SLP-TRK® & FAS Track 1000® Slotted Tracks	A653/A924/A1003
USG Shaftwall Members	A653/A924/A1003
Expanded Metal Lath Products	A653/A924/A1003

*CEMCO® products are not expected to create exposure conditions that exceed safe thresholds for health impacts to humans or flora/fauna under normal operating conditions.*

\* CEMCO® ONLY USES HOT-DIP GALVANIZED



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## Life Cycle Assessment – Product System and Modeling

A “cradle-to-gate” analysis using life cycle assessment (LCA) techniques was conducted for this EPD. The analysis was done according to the product category rule (PCR) for Designated Steel Construction Products and followed LCA principles, requirements and guidelines laid out in the ISO 14040/14044 standards. As such, EPDs of construction products may not be comparable if they do not comply with the same PCR. While the intent of the PCR is to increase comparability, there may still be differences among EPDs that comply with the same PCR (e.g., due to differences in system boundaries, background data, etc.).

### Declared Unit

The declared unit for an EPD is one metric ton of steel construction product.

Name	Required Unit	Optional Unit
Declared Unit	metric ton	short ton
Density	kg/m <sup>3</sup>	lb/ft <sup>3</sup>

### System Boundaries

The “cradle-to-gate” life cycle stages represent the product stage (information modules A1-A3) and include

- A1: all extraction and processing of raw materials; any reuse of products or materials from a previous product system; processing of secondary materials; and any energy recovery or other recovery processes from secondary fuels;
- A2: all transportation to the factory gate and all internal transport;
- A3: production of all ancillary materials, pre-products, products, and co-products, including any packaging; generation of electricity from primary energy resources, including upstream processes.

Product Stage			Construction Stage		Use Stage					End-of-Life Stage			
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4
Raw materials supply	Transport	Manufacturing	<i>EXCLUDED FROM THIS STUDY</i>										
			Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	De-construction	Transport	Waste processing	Disposal

This EPD represents 2012 steel framing production by CEMCO in four US plants (City of Industry and Pittsburg, CA; Denver, CO; and Forth Worth, TX).





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## Assumptions

No significant assumptions have been made. All of the raw materials and energy inputs have been modeled using processes and flows that closely follow actual production raw materials and processes. All of the material and energy flows have been accounted.

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## Allocation

No multi-output (i.e., co-product) allocation was performed in this study. Allocation of background data (energy and materials) taken from the GaBi 2016 databases is documented online at <http://www.gabi-software.com/international/support/gabi/>.

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## Cut-off Criteria

The cut-off criteria for including or excluding materials, energy and emissions data of the study are as follows:

- Mass: If a flow is less than 1% of the cumulative mass of the model it may be excluded, providing its environmental relevance is not a concern.
- Energy: If a flow is less than 1% of the cumulative energy of the model it may be excluded, providing its environmental relevance is not a concern.
- Environmental relevance: If a flow meets the above criteria for exclusion, yet is thought to potentially have a significant environmental impact, it was included.

No processes were neglected or excluded. Capital items for the production processes (machines, buildings, etc.) were not taken into consideration.

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## Transportation

Inbound: For hot-dip galvanized steel inputs, a weighted average transport distance was applied based on each plant's fraction of total production and based on each plant's primary steel supplier's location. As a result, the weighted average distance is 315 miles by rail and 11 miles by heavy-duty truck. Lubricant, propane and packaging inputs were each assigned an estimated transport distance of 100 miles.

Outbound: Transport distances to local waste management sites were estimated at 20 miles. Transportation to distribution centers or installation sites falls outside of the scope of this "cradle-to-gate" study.



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## Life Cycle Assessment – Results and Analysis

The results presented in this section are per declared unit.

### Use of Energy and Material Resources

Primary Energy (PE) Demand	Unit	Value
Use of renewable PE excluding renewable PE resources used as raw materials	MJ, net calorific value	1.16E+03
Use of renewable PE resources used as raw materials	MJ, net calorific value	6.68E+01
Total use of renewable PE resources (PE and PE resources used as raw materials)	MJ, net calorific value	1.22E+03
Use of non-renewable PE excluding non-renewable PE resources used as raw materials	MJ, net calorific value	2.79E+04
Use of non-renewable PE resources used as raw materials	MJ, net calorific value	1.29E-02
Total use of non-renewable PE resources (PE and PE resources used as raw materials)	MJ, net calorific value	2.79E+04

Material Resource Use	Unit	Value
Use of secondary material	metric ton	0.444
Use of renewable secondary fuels	MJ, net calorific value	0
Use of non-renewable secondary fuels	MJ, net calorific value	0
Blue water use*	m <sup>3</sup>	not declared

\* Net use of fresh water is not reported in this EPD due to lack of consistent water data in worldsteel's hot-dip galvanized dataset. worldsteel is currently working to update its data; once these data are published, net use of fresh water results can be calculated and reported.

### Life Cycle Impact Assessment

Parameter	Unit	Value
Impact Assessment Method: TRACI 2.1		
Global warming potential (GWP)	metric ton CO <sub>2</sub> eq	2.25
Depletion potential of the stratospheric ozone layer (ODP)	metric ton CFC-11 eq	5.04E-08
Acidification potential of soil and water (AP)	metric ton SO <sub>2</sub> eq	1.21E-02
Eutrophication potential (EP)	metric ton N eq	5.25E-04
Formation potential of tropospheric ozone (POCP)	metric ton O <sub>3</sub> eq	0.181
Impact Assessment Method: CML 2001 – April 2013		
Abiotic depletion potential (ADP-elements)*	metric ton antimony eq	4.55E-05
Abiotic depletion potential (ADP-fossil)	MJ, net calorific value	2.61E+04

\* This indicator is based on assumptions regarding current reserves estimates. Users should use caution when interpreting results because there is insufficient information on which indicator is best for assessing the depletion of abiotic resources.



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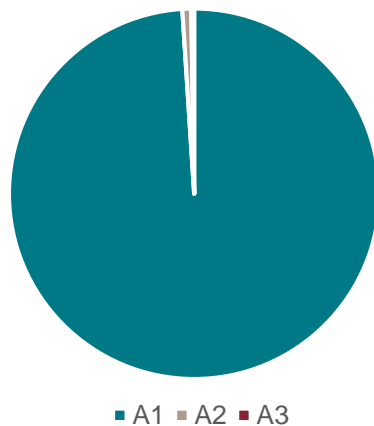
## Other Environmental Information

Parameter	Unit	Value
Hazardous waste disposed	metric ton	5.21E-10
Non-hazardous waste disposed	metric ton	1.09E-04
Radioactive waste disposed	metric ton	6.00E-04
Components for re-use	metric ton	0
Materials for recycling	metric ton	5.02E-02
Materials for energy recovery	metric ton	0
Exported energy	MJ per energy carrier	0

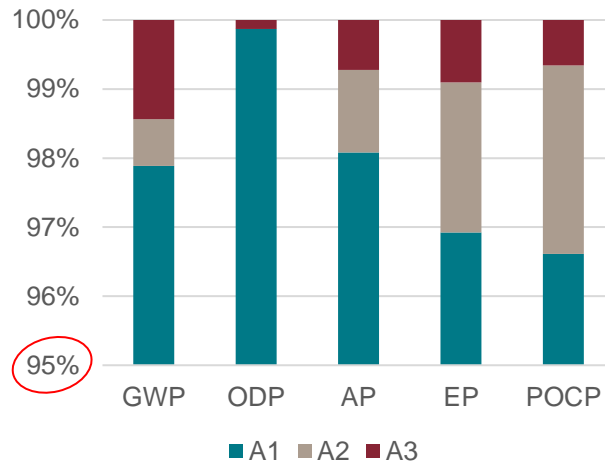
## Visualization of Life Cycle Impact Assessment

The diagrams below illustrate the degree to which the modules drive the major impact categories.

Primary Energy Demand from Non-Renewable Resources



Impact Assessment Categories



## Data Quality Assessment

**Temporal representativeness:** All primary data were collected for the year 2012. All secondary data come from the GaBi 2016 databases and are representative of the years 2007-2015. Therefore, temporal representativeness is warranted. **Geographical representativeness:** 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 representativeness:** 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. **Precision:** As the majority of the relevant foreground data are measured data or calculated based on primary information sources of the owner of the technology, precision is considered to be high. All background data are sourced from GaBi databases with the documented precision.



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**Disclaimer:** This Environmental Product Declaration (EPD) conforms to ISO 14025, ISO 14040, ISO 14044, and ISO 21930.

**Scope of Results Reported:** The PCR requires the reporting of a limited set of LCA metrics; therefore, there may be relevant environmental impacts beyond those disclosed by this EPD. The EPD does not indicate that any environmental or social performance benchmarks are met nor thresholds exceeded.

**Accuracy of Results:** This EPD has been developed in accordance with the PCR applicable for the identified product following the principles, requirements and guidelines of the ISO 14040, ISO 14044, ISO 14025 and ISO 21930 standards. The results in this EPD are estimations of potential impacts. The accuracy of results in different EPDs may vary as a result of value choices, background data assumptions and quality of data collected.

**Comparability:** EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. Such comparisons can be inaccurate, and could lead to the erroneous selection of materials or products which are higher-impact, at least in some impact categories. 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.

## Contact Information

CEMCO Technical Services Department: (800) 416-2278

## LCA Development

The EPD and background LCA were prepared with support from thinkstep, Inc.



thinkstep

