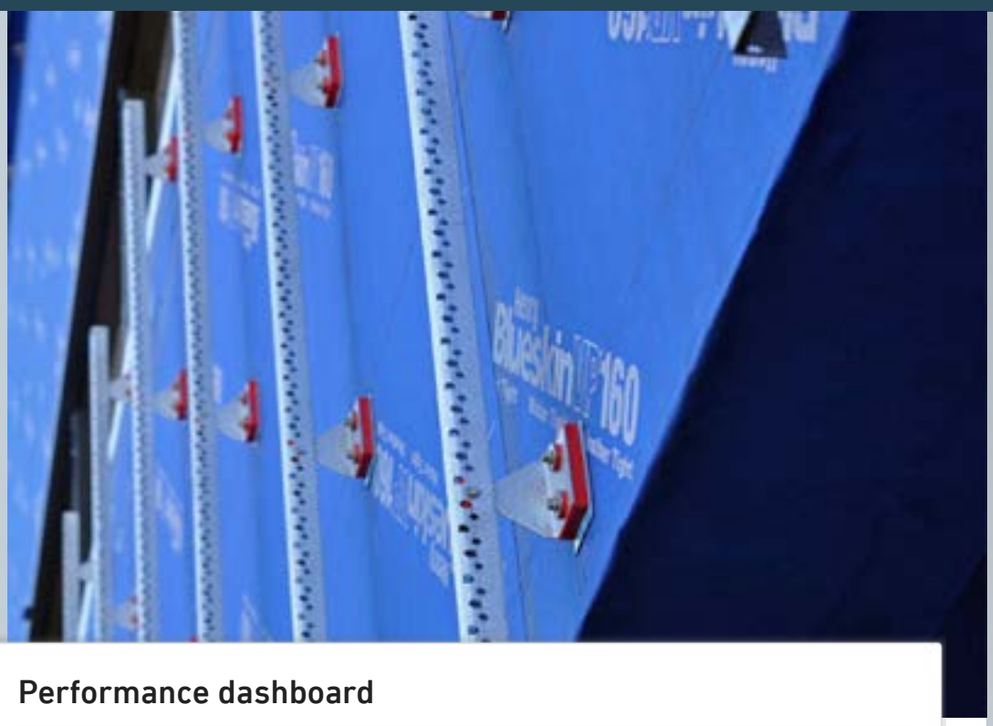
KNIGHT WALL SYSTEMS

KWS® MFI® System

The MFI® system combines strength, flexibility, and sustainability for superior performance. Engineered with durable steel rails and brackets, it supports both vertical and horizontal orientations to fit nearly any design. ThermaBrackets® with ThermaStop® isolation technology reduce thermal bridging, boosting energy efficiency. Made from recyclable, non-combustible steel and Red List Free thermoset polymers, this system offers optimal sustainability while reducing material use and labor costs.



Performance dashboard

Features & functionality

Steel rails and brackets engineered for strength and durability

Supports vertical and horizontal rail orientations for design flexibility

Adjustable rail-to-bracket connections ensure precise installation

Thermally isolated ThermaBrackets® allow greater spacing, optimizing material, and labor use

Visit Knight Wall Systems for more product information:

MFI® system

Environment & materials

Improved by:

Steel ThermaBrackets and Rails are recyclable and non-combustible

ThermaStop® isolator reduces thermal bridging, improving energy efficiency

American-made and produced steel

Certification & rating systems:

ThermaStop® isolator and bracket head cap are made with Red List Free thermoset polymers

ZAM® coating is Red List Free

MasterFormat® 07 05 43
MFI® System Guide Spec, Technical Data Sheet

For spec help, contact us or call 1-855-KWS-WALL

See LCA, interpretation & rating systems

See materials, interpretation & rating systems

Red List Free

SM Transparency Report (EPD)™ + Material Health Overview™

EPD	LCA
3rd-party reviewed	✓
	Transparency Report (EPD)
3rd-party verified	✓

Validity: 06/03/25 – 06/02/30
SM-KWS – 20250603 – 002

MATERIAL HEALTH	Material evaluation
Self-declared	✓

This environmental product declaration (EPD) was externally verified by Industrial Ecology Consultants, according to ISO 14044; ISO 21930:2017; SM Part A: LCA calculation rules and report requirements, 2023; SM Part B: Cladding Support Components and Systems; and ISO 14025:2006.

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Industrial Ecology Consultants

SUMMARY

Reference PCR
SM Part B: Cladding Support Components and Systems, 2022

Regions; system boundaries
North America; Cradle-to-gate

Declared unit
0.6096m (24 linear in) of cladding support system: one single clip unit (if present) & metal rails with clip spaced at one per 24in, w/ exterior cavity depth sufficient to accommodate 101.6mm (4in) of insulation plus depth of support components outboard of insulation layer to which the cladding is attached.

LCIA methodology; LCA software; LCI databases
TRACI 2.1; SimaPro Developer 9.6; ecoinvent v3.10, Industry data 2.0, and US-EI 2.2

Public LCA
LCA of KWS rainscreen cladding support systems

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Contact us

LCA results & interpretation

MFI® System

LCA results & interpretation | EPD additional content | Material health

Scope and summary

● Cradle to gate ○ Cradle to gate with options ○ Cradle to grave

Application

The MFI® system is a high-performance clip-and-rail cladding attachment solution engineered for thermal efficiency and design flexibility with mineral fiber or spray foam insulation. It features a continuous rail mounted to intermittent, thermally isolated ThermaBrackets®, which can be installed in either vertical or horizontal orientations. The system integrates the ThermaStop® thermal isolation assembly to significantly reduce thermal bridging and improve overall energy performance. Two versions are available: the static S-Series with a fixed S-Rail to ThermaBracket-S connection, and the dynamic D-Series with an adjustable D-Rail to ThermaBracket-D connection. Both are offered in 16- or 18-gauge steel, with various depths and lengths to meet diverse project needs. For this study, the selected representative system is the 16-gauge S-Series rail with a 2-inch ThermaBracket-S.

Declared unit

The declared unit is 0.6096 m (24 linear inches) of cladding support system consisting of a single clip unit, if applicable, and 24 inches length of metal rails with the clip spaced at one per 24 inches. For MFI® system, clip is applicable. The exterior cavity depth is sufficient to accommodate 101.6 mm (4 inches) of insulation plus depth of support components outboard of the insulation layer to which the cladding is attached. Fasteners are excluded.

Mass per declared unit: 0.742 kg

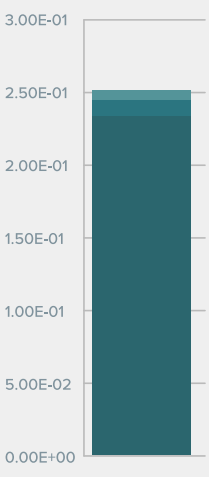
Manufacturing data

Reporting period: January 2024 – December 2024
Location: Deer Park, WA

Material composition by wt%

PART	MATERIAL	AVG. % WT
Rail	Steel	70-75%
Bracket	Steel	15-20%
Isolator	Polypropylene	2-4%
Packaging	Plywood packaging	3-5%
Packaging	Kiln dried fir packaging	2-4%
Packaging	Steel banding	<1%
Packaging	Polypropyene packaging	<1%

Total impacts by life cycle stage [mPts/decl unit]



LIFE CYCLE STAGE	MPTS/DECL. UNIT
Extraction & upstream processing	2.35E-01
Transport to factory	1.10E-02
Manufacturing	4.77E-03

Total impacts = 2.51E-01 mPts

What's causing the greatest impacts

All life cycle stages

The cradle-to-gate life cycle impacts of the product are primarily driven by the material extraction and upstream processing module (A1), which accounts for over 83% of the total impacts across nearly all environmental impact categories. In the case of ozone depletion and smog, where A1's contribution is relatively lower, it still remains the largest contributor, responsible for approximately 70% of the impacts among the A1 to A3 modules. Transportation (A2) is generally the second-highest contributor, although its impacts are significantly lower than those of A1. The manufacturing module (A3) typically contributes less than A2 but exceeds it in ozone depletion, carcinogenics, and non-carcinogenics. Overall, both A2 and A3 have relatively minor contributions compared to the dominant influence of A1.

Extraction and upstream processing

The A1 module dominates the results across all impact categories and includes activities related to raw material extraction and upstream production or preprocessing. It is the most impactful module in the cradle-to-gate life cycle, primarily due to two key processes: the upstream production of steel coils for rails and steel sheets for brackets, which includes iron ore mining and refining, and the slitting operations at the slitting facility. These processes which take place entirely outside the KWS facility, are responsible for approximately 99% of the A1 impacts across all impact categories.

Transport to factory

The transportation module (A2) is the second most significant contributor to several impact categories, including global warming potential, smog formation, acidification, eutrophication, respiratory effects, ecotoxicity, and fossil fuel depletion. The primary impacts in A2 arise from the upstream rail transport of steel coils to the slitting facility and the road transport of slitted coils to the KWS facility. Rail transport, in particular, has a greater impact on smog, acidification, and eutrophication due to emissions from diesel locomotives and large-scale fuel combustion.

Manufacturing

The manufacturing module (A3) surpasses A2 in impacts related to ozone depletion, carcinogenics, and non-carcinogenics. These impacts are primarily driven by electricity consumption in various processing operations at the KWS facility. The use of electricity is a significant contributor across several impact categories.

Sensitivity analysis

Sensitivity analyses were conducted to assess the robustness of the results, focusing on areas with the highest environmental impacts. The majority of impacts stem from raw material extraction and upstream production, with variations depending on the amount of steel used. This influences upstream processes like steel extraction, slitting, and transportation to the KWS facility. To evaluate impact variability across different product configurations of MFI® system, sensitivity analyses were performed using cradle-to-gate results.

The analysis showed that environmental impacts are sensitive to changes in steel mass between configurations. As a result, configuration-specific scaling factors were developed to estimate cradle-to-gate impacts by multiplying the impact results of a representative product by the appropriate factor.

How we're making it greener

Knight Wall Systems® is dedicated to reducing the environmental impacts of the MFI® system through responsible materials and efficient operations. Our steel, sourced from the United States, contains recycled content and comes coated with ZAM®, a Red List Free material that boosts corrosion resistance and extends product lifespan. We use Red List Free thermoset polymers in our ThermaStop® Isolators, enhancing thermal performance and contributing to better building energy efficiency. We also ensure that all steel waste generated during production is recycled. To minimize emissions, we optimize shipping by maximizing crate capacity and grouping shipments for several projects. These initiatives highlight our commitment to sustainability and continual product improvement.

See how we make it greener

LCA results

LIFE CYCLE STAGE	A1 EXTRACTION AND UPSTREAM PROCESSING	A2 TRANSPORT TO FACTORY	A3 MANUFACTURING
	(X) A1 Raw material supply	(X) A2 Transport	(X) A3 Manufacturing
Information modules: **Included (X)** | Excluded (MND)* *Modules A4, A5, B, C, and D are excluded.			

SM Single Score

Learn about SM Single Score results

Impacts per declared unit	2.35E-01 mPts	1.10E-02 mPts	4.77E-03 mPts
Materials or processes contributing >20% to total impacts in each life cycle stage	Energy and materials consumed during steel extraction and processing.	Truck transportation to KWS facility.	Electricity consumed during KWS operations.

TRACI v2.1 results per declared unit

LIFE CYCLE STAGE	A1 EXTRACTION AND UPSTREAM PROCESSING	A2 TRANSPORT TO FACTORY	A3 MANUFACTURING

Ecological damage

Impact category	Unit			
Acidification	**kg SO_2 eq**	9.88E-03	1.55E-03	4.14E-04
Eutrophication	**kg N eq**	1.40E-03	9.85E-05	4.71E-05
Global warming	**kg CO_2 eq**	3.71E+00	2.06E-01	8.26E-02
Ozone depletion	**kg CFC-11 eq**	2.09E-08	3.02E-09	6.30E-09

Human health damage

Impact category	Unit			
Carcinogenics	**CTU_h**	4.02E-08	7.16E-11	4.10E-10
Non-carcinogenics	**CTU_h**	2.43E-07	1.02E-08	1.18E-08
Respiratory effects	**kg $PM_{2.5}$ eq**	2.00E-03	9.86E-05	5.92E-05
Smog	**kg O_3 eq**	1.33E-01	5.01E-02	6.66E-03

Additional environmental information

Impact category	Unit			
Fossil fuel depletion	**MJ surplus**	2.65E+00	3.92E-01	1.20E-01
Ecotoxicity	**CTU_e**	6.65E+00	1.93E-01	6.20E-02

References

LCA Background Report
Knight Wall Systems LCA Background Report of Rainscreen cladding support systems, KWS 2025; SimaPro Developer 9.6; Ecoinvent v3.10, Industry data 2.0, and US-EI 2.2 databases; TRACI 2.1.

ISO 14025, "Sustainability in buildings and civil engineering works -- Core rules for environmental product declarations of construction products and services"

ISO 21930:2017, "Sustainability in Building Construction — Environmental Declaration of Building Products" serves as the core PCR along with Sustainable Minds Part A.

SM Part A: LCA calculation rules and report requirements, version 2023
August, 2023. Part A review conducted by the Sustainable Minds TAB, tab@sustainableminds.com.

SM Part B: Cladding Support Components and Systems, 2022
Oct 31, 2022. Part B review conducted by the Sustainable Minds TAB, tab@sustainableminds.com.

Download PDF SM Transparency Report/ EPD

SM Transparency Reports (TR) are ISO 14025 Type III environmental declarations (EPD) that enable purchasers and users to compare the potential environmental performance of products on a life cycle basis. They are designed to present information transparently to make the limitations of comparability more understandable. Environmental declarations of products that conform to the same PCR and include the same life cycle stages, but are made by different manufacturers, may not sufficiently align to support direct comparisons. They therefore cannot be used as comparative assertions unless the conditions as defined in ISO 14025 Section 6.7.2. 'Requirements for Comparability' are satisfied. In order to support comparative assertions, this EPD meets all comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. Any EPD comparison must be carried out at the building level per ISO 21930 guidelines, use the same sub-category PCR where applicable, include all relevant information modules, be limited to EPDs applying a functional unit, and be based on equivalent scenarios with respect to the context of construction works. Some LCA impact categories and inventory items are still under development and can have high levels of uncertainty. To promote uniform guidance on the data collection, calculation, and reporting of results, the ACLCA methodology (ACLCA 2019) was used.

Rating systems

The intent is to reward project teams for selecting products from manufacturers who have verified improved life-cycle environmental performance.

LEED BD+C: New Construction | v4 - LEED v4

Building product disclosure and optimization

Environmental product declarations

○ Industry-wide (generic) EPD	½ product
● Product-specific Type III EPD	1 product

LEED BD+C: New Construction | v4.1 - LEED v4.1

Building product disclosure and optimization

Environmental product declarations

○ Industry-wide (generic) EPD	1 product
● Product-specific Type III EPD	1.5 products

Collaborative for High Performance Schools National Criteria

MW C5.1 – Environmental Product Declarations

● Third-party certified type III EPD	2 points

Green Globes for New Construction and Sustainable Interiors

Materials and resources

- ● NC 3.5.1.2 Path B: Prescriptive Path for Building Core and Shell
- ● NC 3.5.2.2 and SI 4.1.2 Path B: Prescriptive Path for Interior Fit-outs

BREEAM New Construction 2018

Mat 02 - Environmental impacts from construction products

Environmental Product Declarations (EPD)

○ Industry-average EPD	.5 points
○ Multi-product specific EPD	.75 points
● Product-specific EPD	1 point

EPD additional content

MFI® System

LCA results & interpretation | EPD additional content | Material health

Data

Background This product-specific plant-specific declaration was created by collecting production data from the KWS facility in Deer Park, WA. Secondary data sources include those available in ecoinvent v3.10, Industry data 2.0, and US-EI 2.2 databases.

Allocation The PCR prescribes where and how allocation occurs. Since only facility-level data were available, inputs and outputs were allocated across the five cladding support system types produced at the site. Resource consumption, including electricity and ancillary materials, was assigned based on each system's share of total annual linear foot production. For the MFI® system, which includes two distinct components—rails and brackets—a second allocation step was applied. The electricity allocated to the MFI® system was further divided between the rails and brackets based on their respective annual in-house production mass. This approach ensured that energy use reflected differences in component weight and production volume.

This two-step allocation approach ensures an equitable and representative distribution of manufacturing resource consumption across all products and subcomponents. Additionally, no recycled materials are used in the product system, and there were no co-products manufactured.

Cut-off criteria for including mass and energy flows are set at 1% of renewable primary energy use, 1% of nonrenewable primary energy use, 1% of the total mass input for a unit process, and 1% of environmental impacts. The total of excluded input flows per module shall not exceed 5% for energy, mass, or environmental impacts. An exception is made for substances with hazardous or toxic properties, which must be reported even if they fall below the 1% mass threshold. No known mass or energy flows have been deliberately excluded from this declaration, confirming that the criteria have been met. Biogenic carbon is included in the reported results.

Quality

Inventory data quality is judged by its precision (measured, calculated, or estimated), completeness (e.g., unreported emissions), consistency (degree of uniformity of the methodology applied on a study serving as a data source), and representativeness (geographical, temporal, and technological).

To cover these requirements and to ensure reliable results, first-hand industry data in combination with consistent background LCA information from SimaPro Developer 9.6, and Ecoinvent v3.10, Industry data 2.0, and US-EI 2.2 databases were used.

Sustainable Minds worked with Knight Wall Systems to obtain a comprehensive set of primary data associated with the manufacturing processes. The product system was checked for mass balance and completeness of the inventory. The data set was considered complete based on our understanding of the manufacturing site and a review with key stakeholders on the KWS team, and cut-off criteria were observed consistent with those prescribed in the PCR. Capital equipment was excluded as required by the PCR. Otherwise, no data was knowingly omitted. Where country-specific data were unavailable, global or rest-of-world averages were used as proxies to represent transportation in those locations. Additionally, no proxy data were used to represent materials and therefore did not have a significant impact of the results.

Primary data were collected with a similar level of detail, while background data were sourced primarily from the ecoinvent database, and other databases were used if data were not available in ecoinvent or the data set was judged to be more representative. Other methodological choices were made consistently throughout the model.

Major system boundary exclusions:

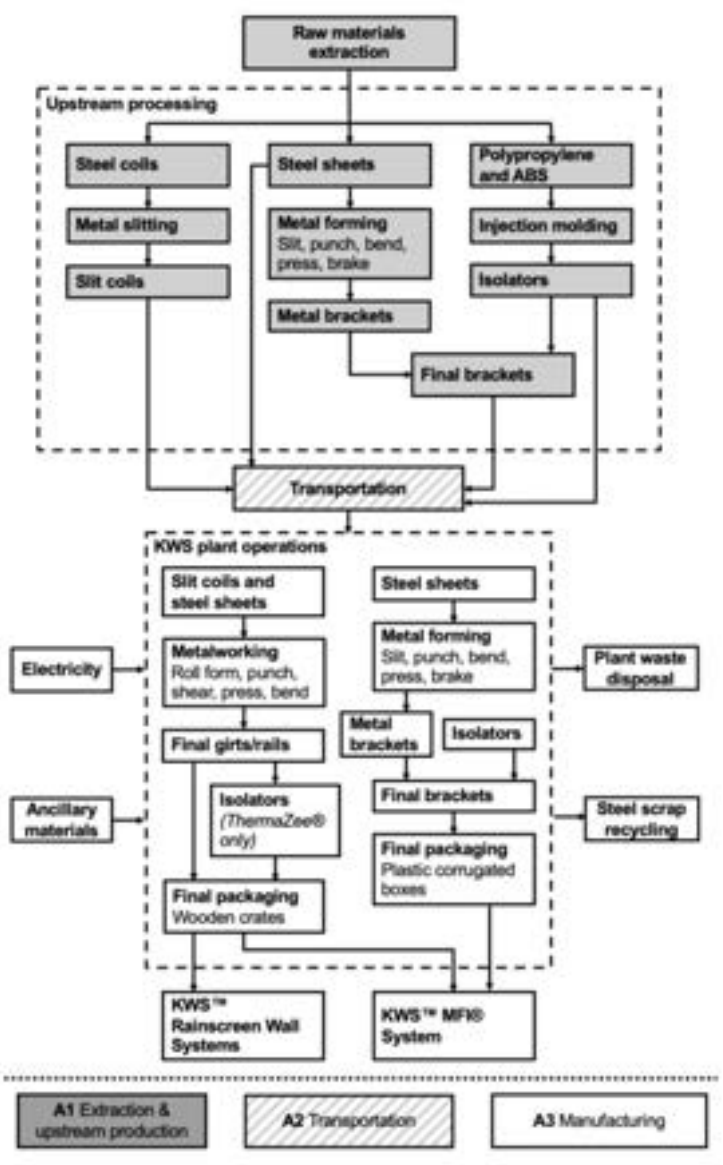
- Construction of major capital equipment
- Manufacturing, maintenance, and operation of support equipment
- Human labor and employee transport
- Manufacture and transport of packaging materials not associated with the final product
- Disposal of packaging materials not associated with the final product
- Building operational energy and water use

Technical information

Major assumptions and limitations:

- The products evaluated in this report may optionally be coated with a black PVDF coating, which was excluded from this analysis.
- Primary data were modeled based on information provided by KWS for calendar year 2024. However, upstream supply chain data are subject to variability, which may impact the accuracy of the results.
- Upstream suppliers were contacted to gather information on component processing, including manufacturing activities, waste handling, and scrap rates. However, the data provided are based on estimates rather than primary data collected directly from the upstream facilities.
- Due to the unavailability of separate electricity data for each system type, electricity consumption in the manufacturing facility was allocated proportionately based on the linear foot production of each system type. However, slight deviations may exist between system types, which could affect the accuracy of the allocation.
- Generic data sets used for material inputs, transport, and waste processing are considered good quality, but actual impacts from material suppliers, transport carriers, and local waste processing may vary.
- The impact assessment methodology categories do not represent all possible environmental impact categories.
- Characterization factors used within the impact assessment methodology may contain varying levels of uncertainty.
- LCA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks.
- No "green power" is used in this declaration.
- No renewable certificates or purchased CO_2 offsets are included.

Flow diagram



MFI® system: LCIA results, resource use, output and waste flows, and carbon emissions & removals per declared unit

Parameter	Unit	[A1] Extraction & upstream processing	[A2] Transport	[A3] Manufacturing	Cradle-to-gate total
Life cycle impact assessment results					
Ozone depletion	kg CFC-11 eq	2.09E-08	3.02E-09	6.30E-09	**3.03E-08**
Global warming	kg CO2 eq	3.71E+00	2.06E-01	8.26E-02	**4.00E+00**
Smog	kg O3 eq	1.33E-01	5.01E-02	6.66E-03	**1.90E-01**
Acidification	kg SO2 eq	9.88E-03	1.55E-03	4.14E-04	**1.18E-02**
Eutrophication	kg N eq	1.40E-03	9.85E-05	4.71E-05	**1.54E-03**
Carcinogenics	CTUh	4.02E-08	7.16E-11	4.10E-10	**4.07E-08**
Non carcinogenics	CTUh	2.43E-07	1.02E-08	1.18E-08	**2.65E-07**
Respiratory effects	kg PM2.5 eq	2.00E-03	9.86E-05	5.92E-05	**2.16E-03**
Additional environmental information					
Ecotoxicity	CTUe	6.65E+00	1.93E-01	6.20E-02	**6.91E+00**
Fossil fuel depletion	MJ surplus	2.65E+00	3.92E-01	1.20E-01	**3.16E+00**
Resource use indicators					
Renewable primary energy used as energy carrier (fuel)	MJ, LHV	2.21E+00	4.50E-03	1.71E+00	**3.93E+00**
Renewable primary resources with energy content used as material	MJ, LHV	0	0	0	**0**
Total use of renewable primary resources with energy content	MJ, LHV	2.21E+00	4.50E-03	1.71E+00	**3.93E+00**
Non-renewable primary resources used as an energy carrier (fuel)	MJ, LHV	4.20E+01	2.75E+00	1.26E+00	**4.60E+01**
Non-renewable primary resources with energy content used as material	MJ, LHV	0	0	0	**0**
Total use of non-renewable primary resources with energy content	MJ, LHV	4.20E+01	2.75E+00	1.26E+00	**4.60E+01**
Secondary materials	kg	0	0	0	**0**
Renewable secondary fuels	MJ, LHV	0	0	0	**0**
Non-renewable secondary fuels	MJ, LHV	0	0	0	**0**
Recovered energy	MJ, LHV	0	0	0	**0**
Use of net fresh water resources	m3	9.49E+00	2.24E-02	1.52E+00	**1.10E+01**
Abiotic depletion potential for fossil resources	MJ, LHV	4.03E+01	2.74E+00	1.18E+00	**4.42E+01**
Output flows and waste category indicators					
Hazardous waste disposed	kg	0	0	0	**0**
Non-hazardous waste disposed	kg	0	0	0	**0**
High-level radioactive waste, conditioned, to final repository	kg	7.45E-06	3.49E-08	2.99E-07	**7.78E-06**
Intermediate- and low-level radioactive waste, conditioned, to final repository	kg	1.61E-05	6.67E-08	6.59E-07	**1.68E-05**
Components for re-use	kg	0	0	0	**0**
Materials for recycling	kg	4.28E-02	0	1.02E-01	**1.45E-01**
Materials for energy recovery	kg	0	0	6.48E-03	**6.48E-03**
Exported energy	MJ, LHV	0	0	0	**0**
Carbon emissions and removals					
Biogenic Carbon Removal from Product	kg CO2	0	0	0	**0**
Biogenic Carbon Emission from Product	kg CO2	0	0	0	**0**
Biogenic Carbon Removal from Packaging	kg CO2	0	0	-9.28E-02	**-9.28E-02**
Biogenic Carbon Emission from Packaging	kg CO2	0	0	0	**0**
Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes	kg CO2	0	0	0	**0**
Calcination Carbon Emissions	kg CO2	0	0	0	**0**
Carbonation Carbon Removals	kg CO2	0	0	0	**0**
Carbon Emissions from Combustion of Waste from Non-Renewable Sources used in Production Processes	kg CO2	0	0	0	**0**

LCIA results for a single bracket component

Impact category	Unit	[A1] Extraction & upstream processing	[A2] Transport	[A3] Manufacturing	Cradle-to-gate total
Ozone depletion	kg CFC-11 eq	6.54E-09	6.04E-10	6.79E-10	**7.82E-09**
Global warming	kg CO2 eq	8.35E-01	4.12E-02	2.42E-02	**9.00E-01**
Smog	kg O3 eq	3.18E-02	9.87E-03	9.45E-04	**4.27E-02**
Acidification	kg SO2 eq	2.29E-03	3.06E-04	9.39E-05	**2.69E-03**
Eutrophication	kg N eq	3.08E-04	1.94E-05	7.94E-06	**3.36E-04**
Carcinogenics	CTUh	9.48E-09	1.45E-11	4.01E-11	**9.53E-09**
Non carcinogenics	CTUh	6.71E-08	2.07E-09	7.68E-10	**6.99E-08**
Respiratory effects	kg PM2.5 eq	4.47E-04	1.96E-05	9.84E-06	**4.76E-04**
Additional environmental information					
Ecotoxicity	CTUe	1.39E+00	3.95E-02	4.29E-03	**1.43E+00**
Fossil fuel depletion	MJ surplus	7.47E-01	7.82E-02	5.67E-02	**8.82E-01**

LCIA results for 12 linear inches of metal rail

Impact category	Unit	[A1] Extraction & upstream processing	[A2] Transport	[A3] Manufacturing	Cradle-to-gate total
Ozone depletion	kg CFC-11 eq	7.20E-09	1.21E-09	2.81E-09	**1.12E-08**
Global warming	kg CO2 eq	1.44E+00	8.26E-02	2.92E-02	**1.55E+00**
Smog	kg O3 eq	5.05E-02	2.01E-02	2.86E-03	**7.35E-02**
Acidification	kg SO2 eq	3.80E-03	6.23E-04	1.60E-04	**4.58E-03**
Eutrophication	kg N eq	5.44E-04	3.95E-05	1.96E-05	**6.03E-04**
Carcinogenics	CTUh	1.54E-08	2.86E-11	1.85E-10	**1.56E-08**
Non carcinogenics	CTUh	8.77E-08	4.05E-09	5.53E-09	**9.73E-08**
Respiratory effects	kg PM2.5 eq	7.76E-04	3.95E-05	2.47E-05	**8.40E-04**
Additional environmental information					
Ecotoxicity	CTUe	2.63E+00	7.69E-02	2.89E-02	**2.74E+00**
Fossil fuel depletion	MJ surplus	9.51E-01	1.57E-01	3.17E-02	**1.14E+00**

MFI® S-Series system: LCIA scaling factors

Impact category	MFI® S-Series system with S 16 ga rail					MFI® S-Series system with S 18 ga rail					
	3S bracket	3.5S bracket	4S bracket	5S bracket	6S bracket	2S bracket	3S bracket	3.5S bracket	4S bracket	5S bracket	6S bracket
Ozone depletion	1.07	1.06	1.07	1.10	1.14	0.91	0.98	0.98	0.99	1.02	1.06
Global warming	1.09	1.08	1.09	1.13	1.18	0.88	0.97	0.96	0.98	1.02	1.07
Smog	1.09	1.08	1.09	1.14	1.19	0.88	0.97	0.97	0.98	1.02	1.07
Acidification	1.08	1.08	1.09	1.13	1.18	0.89	0.97	0.96	0.97	1.01	1.06
Eutrophication	1.08	1.08	1.09	1.13	1.18	0.88	0.97	0.96	0.97	1.01	1.06
Carcinogenics	1.10	1.09	1.11	1.16	1.21	0.89	0.99	0.98	0.99	1.04	1.10
Non carcinogenics	1.11	1.10	1.12	1.17	1.23	0.89	1.00	0.99	1.01	1.06	1.12
Respiratory effects	1.08	1.08	1.09	1.13	1.18	0.88	0.97	0.96	0.97	1.01	1.06
Additional environmenal information											
Ecotoxicity	1.09	1.08	1.10	1.14	1.19	0.88	0.97	0.96	0.98	1.02	1.07
Fossil fuel depletion	1.09	1.08	1.09	1.13	1.18	0.89	0.98	0.97	0.98	1.03	1.08

SM Transparency Report (EPD)™ + Material Health Overview™

EPD	LCA
3rd-party reviewed	✓
	Transparency Report (EPD)
3rd-party verified	✓

Validity: 06/03/25 – 06/02/30
SM-KWS – 20250603 – 002

MATERIAL HEALTH	Material evaluation
Self-declared	✓

This environmental product declaration (EPD) was externally verified by Industrial Ecology Consultants, according to ISO 14044; ISO 21930:2017; SM Part A: LCA calculation rules and report requirements, 2023; SM Part B: Cladding Support Components and Systems; and ISO 14025:2006.

Industrial Ecology Consultants
35 Bracebridge Rd
Newton, MA 02459
(617) 553-4929
www.industrial-ecology.com

Industrial Ecology Consultants

SUMMARY

Reference PCR
SM Part B: Cladding Support Components and Systems, 2022

Regions; system boundaries
North America; Cradle-to-gate

Declared unit
0.6096m (24 linear in) of cladding support system: one single clip unit (if present) & metal rails with clip spaced at one per 24in, w/ exterior cavity depth sufficient to accommodate 101.6mm (4in) of insulation plus depth of support components outboard of insulation layer to which the cladding is attached.

LCIA methodology; LCA software; LCI databases
TRACI 2.1; SimaPro Developer 9.6; ecoinvent v3.10, Industry data 2.0, and US-EI 2.2

Public LCA
LCA of KWS rainscreen cladding support systems

Knight Wall Systems
2401 E 6th St
Deer Park, WA, 99006
www.knightwallsystems.com
(855) 597-9255

Contact us

LCA & material health results & interpretation

MFI® System

LCA results & interpretation | EPD additional content | Material health

Evaluation programs

Declare

Declare labels are issued to products disclosing ingredient inventory, sourcing, and end of life options. Declare labels are based on the Manufacturers Guide to Declare, administered by the International Living Future Institute.

How it works

Material ingredients are inventoried and screened against the Living Building Challenge (LBC) Red List which represents the 'worst in class' materials, chemicals, and elements known to pose serious risks to human health and the greater ecosystem.

The Declare product database and label are used to select products that meet the Living Building Challenge's stringent materials requirements, streamlining the materials specification and certification process.

Assessment scope and results

Declare™

Inventory threshold: 100 ppm

Declare level:
The Declare product database and label are used to select products that meet the LBC's stringent materials requirements, streamlining the materials specification and certification process.

- LBC Red List Free
- LBC Red List Approved
- Declared

Click the label to see the full declaration.

MFI® system


Declare.

MFI System
Knight Wall Systems

Final Assembly: Deer Park, Washington, USA
Life Expectancy: Life of Structure Year(s)
End of Life Options: Recyclable (100%)

Ingredients:

MFI Rail: G10210 Steel; Steel Thermablocker: G10210 Steel;
Polypropylene Isolators: Polypropylene; Glass, oxide, chemicals

Living Building Challenge Criteria: Compliant

Red List:
LBC Red List Free
LBC Red List Approved
Declared

% Disclosed: 100% at 100ppm
VOC Content: Not Applicable

Interior Performance: Not Applicable
Responsible Sourcing: Not Applicable

KWS-0002
EXP. 01 SEP 2025
Original Issue Date: 2024

INTERNATIONAL LIVING FUTURE INSTITUTE

What's in this product and why

Declare level

'Red List Free' is achieved when the product does not contain any ingredients listed on the Living Building Challenge Red List above the 100 ppm (0.01%) reporting threshold, demonstrating full compliance with material health requirements without the need for exceptions.

What's in the product and why

All components of the MFI® system are Red List Free. The Red List, developed by the International Living Future Institute, identifies chemicals and materials known to pose risks to human and environmental health. Eliminating these substances is a key design principle for Knight Wall Systems, and material selection for these systems was guided by that standard.

The isolator and bracket head cap are made with a Red List free thermoset polymer, selected for both its compliance and performance characteristics. This material provides durability and structural reliability without relying on hazardous additives typically found in similar applications.

All metal components in the systems use steel coated with ZAM® (zinc-aluminum-magnesium), which is also Red List free. ZAM® offers excellent corrosion resistance, improving the overall longevity of the system. Steel's ability to be recycled indefinitely without degrading its properties also contributes to reducing environmental impact over the full life cycle of the product.

What's been done in the design and manufacture in consideration of the potential human health impacts in the use stage

The MFI® system has been designed and manufactured with the intention of causing as little harm to human and environmental health as possible. By using recyclable steel and Red List free materials, the system ensures that end users do not need to be concerned about interacting with the product in either installation or long-term use.

Where it goes at the end of its life

KWS encourages consumers to recycle used rainscreen cladding support systems, which are 100% recyclable. For information on local recycling options, please contact your municipal waste management program.

How we're making it healthier

One way we are reducing the environmental and health impacts of the MFI® system is by focusing on responsible sourcing and material transparency. The steel used in the system is sourced from the USA, which helps reduce transportation-related emissions. Additionally, the steel contains at least 34.2% recycled content, meaning less new raw material is needed. This not only lowers the environmental impact of production but also promotes the use of recycled materials, making the system a more sustainable and healthier choice for both people and the planet.

See how we make it greener

References

Declare
KWS, Declare label for MFI® system

Manufacturer's Guide to Declare
A comprehensive guide providing information about the program, the assessment methodology, how to submit material data to obtain a Declare label and how they are used to meet the Health & Happiness and Materials Petals of the Living Building Challenge.

Rating systems

LEED BD+C: New Construction | v4 - LEED v4
Building product disclosure and optimization
Material Ingredients

Credit value options — 1 product each

- [x] 1. Reporting
- [ ] 2. Optimization
- [ ] 3. Supply Chain Optimization

LEED BD+C: New Construction | v4.1 - LEED v4.1
Materials and resources
Material Ingredients

Credit value options — 1 product each

- [x] 1. Reporting
- [ ] 2. Optimization
- [ ] 3. Supply Chain Optimization

Living Building Challenge
Materials petals imperatives

- [x] 10. Red List Free
- [ ] 12. Responsible Industry
- [ ] 13. Living Economy Sourcing

WELL Building Standard®
Air and Mind Features

- [x] **X07** Materials Transparency
- [ ] **X08** Materials Optimization

Collaborative for High Performance Schools National Criteria
EQ C7.1 Material Health Disclosures

- [x] Performance Approach — 2 points
- [x] Prescriptive Approach — 2 points

SM Transparency Report (EPD)™ + Material Health Overview™

EPD	LCA
3rd-party reviewed	✓
	Transparency Report (EPD)
3rd-party verified	✓

Validity: 06/03/25 – 06/02/30
SM-KWS – 20250603 – 002

MATERIAL HEALTH	Material evaluation
Self-declared	✓

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How we make it greener

MFI® System

Expand all

EXTRACTION AND UPSTREAM PROCESSING

Knight Wall Systems® sources steel produced in the United States using a Basic Oxygen Furnace, containing at least 34.2% recycled content. The steel is coated with a ZAM® coating, which is a Red List Free alloy that enhances corrosion resistance and extends the lifespan of our MFI® systems beyond that of the building itself. The thermoset polymer applied to the ThermaBrackets® is also Red List Free, contributing to the system's overall longevity and sustainability.

TRANSPORT TO FACTORY

Knight Wall Systems® prioritizes sustainability in the transportation practices by utilizing rail car transport for steel, minimizing carbon emissions. We optimize shipping efficiency by maximizing crate capacity and consolidating materials for multiple projects on each flatbed, reducing the number of shipments. Our ThermaBrackets® and fasteners are packaged in reusable plastic containers, and MFI® system rails are shipped without plastic packaging. To further reduce our environmental footprint, wood crates are locally sourced from Spokane, Washington, supporting regional supply chains and reducing transportation distances.

MANUFACTURING

The majority of Knight Wall Systems® material handling equipment used in our manufacturing processes is electric, helping to reduce emissions. Water-based lubricants are employed in our manufacturing equipment, minimizing the use of harmful chemicals. Additionally, our processes generate minimal waste, with the majority being steel that is then recycled.

ADDITIONAL ENVIRONMENTAL INFORMATION

Once installed, MFI® systems contribute to building sustainability by achieving 80 to 95% thermal performance efficiency, significantly reducing energy consumption. Made with ZAM®-coated steel, the system is designed to outlast the expected lifetime of the building, ensuring long-term durability. Additionally, the ThermaBrackets® with ThermaStop® isolation technology minimizes thermal bridging, further enhancing the building's energy performance and supporting overall energy efficiency throughout its lifespan.

SM Transparency Report (EPD)™ + Material Health Overview™

EPD	LCA
3rd-party reviewed	✓
	Transparency Report (EPD)
3rd-party verified	✓

Validity: 06/03/25 – 06/02/30
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