ENVIRONMENTAL PRODUCT DECLARATION

CASTWORKS™ GRG/GFRG CEILINGS & WALLS

ARCHITECTURAL FORMS



CastWorks™ Metaphors® ceiling panels in Tectonic design with integrated lighting from Omnify

Armstrong®
World Industries

COMMITTED TO SUSTAINABILITY

Armstrong World Industries leads in delivering solutions that meet today's most stringent industry sustainability standards. We are committed to environmental responsibility in all aspects of our business, and carbon reduction is part of our 2030 Company goals and ambitions.

We were one of the first companies to create and publish the Environmental Product Declaration (EPD) in the ceiling industry. We have over a decade of experience using Life Cycle Assessment (LCA) to evaluate environmental impacts of our products starting with design, to raw materials, and through our operations. We are constantly working to optimize our operations and products to reduce their environmental impact. We believe the use of LCA and our commitment to transparency of our products' carbon footprint is critical to contributing to decarbonization of the built environment.

For more information visit
armstrongceilings.com/transparency

ASTM INTERNATIONAL

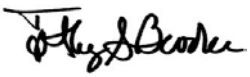
ENVIRONMENTAL PRODUCT DECLARATION

Armstrong®
World Industries

CASTWORKS™ GRG/GFRG CEILINGS & WALLS
ARCHITECTURAL FORMS

According to ISO 14025 AND ISO 21930

1. CONTENT OF THE EPD

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	ASTM International – 100 Barr Harbor Drive, West Conshohocken, PA, 19428, USA www.astm.org
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	ASTM Program Operator for Product Category Rules (PCR) and Environmental Product Declarations (EPDs), General Program Instructions, Version: 8.0, Revised 04/29/20
MANUFACTURER NAME AND ADDRESS	Armstrong World Industries 2500 Columbia Avenue Lancaster, PA 17603
DECLARATION NUMBER	EPD 553
DECLARED PRODUCT & DECLARED UNIT	0.093 m^2 (1 ft^2) of installed ceiling and wall panel, with reference service life (RSL) of 30-years.
REFERENCE PCR AND VERSION NUMBER (Part A and B)	PCR for Building-Related Products and Services - Part A: LCA Calculation Rules and Report Requirements, UL 10010 v.3.2, December 2018. PCR Guidance for Building-Related Products and Services - Part B: Non-Metal Ceiling Panel EPD Requirements, UL Environment, v2, 04/2021
DESCRIPTION OF PRODUCT'S INTENDED APPLICATION AND USE (AS IDENTIFIED WHEN DETERMINING PRODUCT RSL)	CastWorks™ Architectural Forms are Glass-Fiber Reinforced Gypsum ceiling and wall products
PRODUCT RSL DESCRIPTION (IF APPL.)	30 Years
MARKETS OF APPLICABILITY	North America
DATE OF ISSUE	September 1, 2023
PERIOD OF VALIDITY	5 years
EPD TYPE	Product-Specific
EPD SCOPE	Cradle-to-gate with options EPD (A1-A3, A4, A5, C1-C4), based on 30-year RSL
YEAR(S) OF REPORTED MANUFACTURER PRIMARY DATA	2022
LCA SOFTWARE & VERSION NUMBER	Sphera FE 10.7.0.183
LCI DATABASE(S) & VERSION NUMBER	Sphera MLC 2023-01
LCIA METHODOLOGY & VERSION NUMBER	TRACI 2.1
This declaration was independently verified in accordance with ISO 14025: 2006. The UL Environment "Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report," serves as the core PCR. ☐ INTERNAL ☒ EXTERNAL	 Tim Brooke, ASTM International
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	Armstrong World Industries
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Thomas P. Gloria, Ph. D. Industrial Ecology Consultants 
LIMITATIONS	

Environmental declarations from different programs (ISO 14025) may not be comparable.

Comparison of the environmental performance of Non-Metal Ceiling Panel using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phase as instructed under this PCR.

Full conformance with this PCR allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to differences in results for upstream or downstream of the life cycle stages declared.

ASTM certification of this EPD is not to be construed as representing aesthetics or any other attributes not specifically addressed, nor should it be construed as an ASTM endorsement of the subject of the EPD or a recommendation for its use. There is no warranty by ASTM, express or implied, as to any finding or other matter in the EPD, or as to any product covered by the EPD.
The EPD holder is liable for the information and evidence on which the EPD is based.

2. GENERAL INFORMATION

2.1 DESCRIPTION OF ORGANIZATION

Armstrong World Industries, Inc. (AWI) is a leader in the design and manufacture of innovative commercial and residential ceiling, wall and suspension system solutions in the Americas. At home, at work, in healthcare facilities, classrooms, stores, or restaurants, Armstrong World Industries offers interior solutions that help to enhance comfort, save time, improve building efficiency and overall performance, and create beautiful spaces.

For more than 150 years, we have built our business on trust and integrity. It set us apart then, and it sets us apart now, along with our ability to collaborate with, and innovate for the people we're here to serve – our customers, our shareholders, our communities, and our employees.

We are committed to developing new and sustainable ceiling and wall solutions, with design and performance possibilities that make a positive difference in spaces where we live, work, learn, heal, and play.

2.2 PRODUCT DESCRIPTION

CastWorks™ Glass Fiber-Reinforced Gypsum (GRG/GFRG) Architectural Forms take many shapes including, but not limited to, ceiling and wall panels, domes, column covers, access panels, light coves, moldings & trims, etc. Available for interior use, CastWorks GRG products are lightweight, strong, durable, and easy to install.

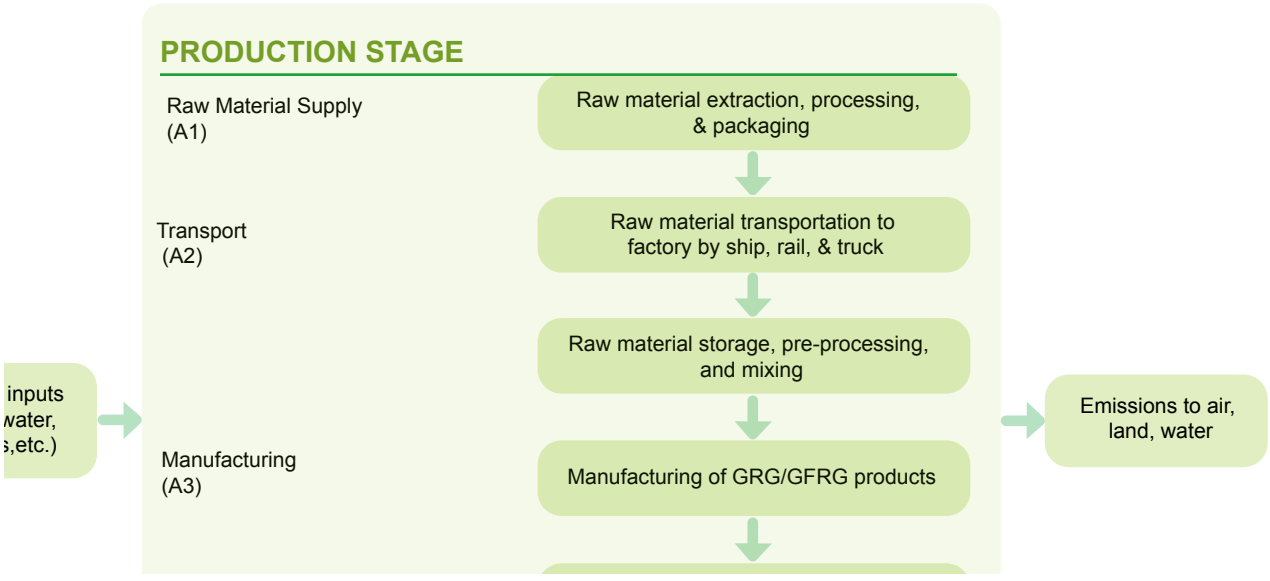
2.2.1 Product Specification

These products generally fall under ASTM ASTM E1264-22, Standard Classification for Acoustical Ceiling Products, Section 5.2 designation as Type XX. This report covers all CastWorks™ GRG/GFRG ceiling and wall products.

CastWorks GRG/GFRG architectural forms products (Interior) are manufactured in Mississauga, Canada, Lincoln, CA and Milwaukee, WI. After packaging, the material is shipped and installed.

2.2.2 Flow Diagram

CastWorks GRG/GFRG products are manufactured using a forming process. After arriving at the Armstrong manufacturing facility, the raw materials are processed and go through quality checks then mixed, water is added, and the mixture is molded into forms which are then dried. The panels are finished by application of paint. After packaging, the material is shipped in wooden crates on pallets and installed. At the end of its useful life, the ceiling panel can then be sent to a landfill.



2.3 PRODUCT AVERAGE

2.3.1 Product-Specific EPD

This EPD is specific to CastWorks™ GRG/GFRG architectural forms products produced. A weighted average approach was applied. Inputs were developed based on 2022 production volumes and weights.

2.4 APPLICATION

The products covered by this EPD are designed to be directly attached to framing, drywall or with a suspension system. Panels can be installed on ceiling or walls.

2.5 MATERIAL COMPOSITION

TABLE 1. MATERIAL COMPOSITION

The raw materials used in ceiling/wall panel manufacturing are summarized in the table below.

Material	Quantity (% by weight)
Plaster	80-85%
Potash	5-10%
Water	10-15%
Fiberglass	1-5%
MDF	1-5%
Rubber	0.01-1%
Plywood	0.01-1%
Coating	0.01-1%

2.6 TECHNICAL DATA

TABLE 2. TECHNICAL DATA

Property	Test Method	CastWorks™ Glass Fiber Reinforced Gypsum (GRG/GFRG)
Sound absorption coefficient (NRC)	ASTM C423	n/a
Interzone attenuation of open office components (AC)	ASTM E1111, ASTM E1110	n/a
Sound Transmission Class (STC)	ASTM E413, ASTM E90	n/a
Sound attenuation between rooms sharing a common ceiling plenum (CAC)	ASTM E1414, ASTM E413	n/a
Light reflectance	ASTM E1477	Varies based on color
Flame spread/smoke development	ASTM E84, ASTM E1264	Class A

2.7 PROPERTIES OF DECLARED PRODUCT AS DELIVERED

The final EPD is available on the Armstrong website (armstrongceilings.com/epd); and is under the Finish category in the EC3 Tool (buildingtransparency.org).

3. METHODOLOGICAL FRAMEWORK

This study provides life cycle inventory and environmental impacts relevant to Armstrong® ceiling and wall panels. The LCA follows an attributional approach as outlined in ISO 21930 Section 7.1.1- see also PCR Part A-6.

3.1 DECLARED UNIT

The declaration refers to the declared unit of 0.093 m^2 (1 ft^2) of installed ceiling or wall panel, with reference service life (RSL) of 30-years.

3.2 DECLARED UNIT PROPERTIES

TABLE 3. DECLARED UNIT PROPERTIES

Product	Declared Unit m^2 (ft^2)	Declared Thickness cm (in)	Surface Weight kg/0.093 m^2 (lb/ft^2)	Density kg/m^3 (lb/ft^3)
CastWorks™ GRG/GFRG Ceilings & Walls	0.093 (1)	0.476 (0.1875)	1.39 (3.06)	337.0 (195.8)

3.3 SYSTEM BOUNDARY

The scope of the study includes production, installation, and end of life. Production of capital equipment, facilities, and infrastructure required for manufacture are outside the scope of this assessment. Details of inclusions and exclusions from the system boundary are listed below.

TABLE 4. ELEMENTS INCLUDED IN THE CRADLE TO GATE WITH OPTIONS STUDY

Includes	Excludes
– Raw materials production (A1) – Inbound transport of raw materials to production facility (A2) – Manufacturing of panels (A3) – Electricity and fuel combustion (A3) – Packaging of final products (A3) – Transportation to the job site (A4) – Installation and installation waste (A5) – Deconstruction – manual, no impact (C1) – End of life, including transport (C2-C4)	– Construction of capital equipment and other infrastructure flows – Maintenance and operation of support equipment – Human labor and employee transport – Manufacture and transport of packaging materials not associated with final product – Use Phase (B1 to B7) – Benefits and loads beyond the system boundary (D)

3.4 PRODUCT-SPECIFIC CALCULATIONS FOR END-OF-LIFE PHASE (MODULES C1-C4)

At this time, there is no industry consensus for product-specific assumption behind reported scenarios for information in modules C1-C4. For this study, the end-of-life product scenario was based on the US EPA 2018 Data on Construction and Demolition Debris. Based on this data, ~74% of wood construction and demolition waste is landfilled and ~22% is incinerated. Based on this data, ~74% of wood construction and demolition waste is landfilled and ~22% is incinerated.

3.5 REFERENCE SERVICE LIFE AND ESTIMATED BUILDING SERVICE LIFE

In accordance with the PCR, the Reference Service Life (RSL) for this study was assumed to be 30 years.

3.6 ALLOCATION

Allocation at the manufacturing plant was based on production volume. Allocation of background data (energy and materials) taken from the Sphera MLC databases.

3.7 CUT-OFF RULES

No known flows are deliberately excluded from this EPD. The system boundary was defined based on relevance to the goal of the study. For the processes within the system boundary, all available energy and material flow data have been included in the model. In cases where no matching life cycle inventories are available to represent a flow, proxy data have been applied based on conservative assumptions regarding environmental impacts.

3.8 DATA SOURCES

Primary data for this study was collected from the manufacturing facilities for 2022 and datasets for materials upstream from manufacturing were obtained from the Sphera MLC database version 10.7.0.183

3.9 DATA QUALITY

The data quality ranges from good to very good. The temporal quality of the data is very good with both manufacturing specific data and Sphera MLC background data from 2023.1. Because primary and secondary data were collected specifically to the location of manufacture when possible, geographical representativeness is considered to be good.

3.10 PERIOD UNDER REVIEW

All the primary data in the scope of this analysis was collected from manufacturing facilities during 2022.

3.11 COMPARABILITY AND BENCHMARKING

CastWorks™ Glass Fiber-Reinforced Gypsum (GRG/GFRG) Architectural Forms offer a unique set of product attributes and we do not have any data on comparable non-competitive products to report.

3.12 ESTIMATES AND ASSUMPTIONS

The datasets for materials upstream from manufacturing are from the Sphera MLC database. When inventories were not available for materials, conservative proxy datasets were chosen based on similarity of material. Additionally and consistent with the PCR, the following assumptions in Table 5 related to transport, installation, and deconstruction procedures were made.

TABLE 5. TRANSPORT, INSTALLATION, AND DECONSTRUCTION PROCEDURES

Product transport from point of manufacture to building site	Mode: Diesel-powered truck/trailer Distance: 800 km
Product transport from building site to waste processing	Mode: Diesel-powered truck/trailer Distance: 35 km
Installation & deconstruction procedures	Manual (no operational energy use)

3.13 UNITS

Units commonly used in the North American market are included in addition to the required SI units.

4. TECHNICAL INFORMATION AND SCENARIOS

4.1 MANUFACTURING

The manufacturing process has been described in a simple flow chart in Section 2.2.3.

4.2 PACKAGING

Armstrong CastWorks™ GRG/GFRG architectural forms are well packaged in a variety of wooden panels, rigid corrugate, foam and stretch wrap. Stacks of material are banded to wooden pallets for shipping.

4.3 TRANSPORTATION

The following information specifies any transport after the manufacturing gate. Details of type of transport, type of vehicle, distance, type, and amount of energy carrier are listed. These values are consistent with industry standard assumptions.

TABLE 6. TRANSPORT TO THE BUILDING SITE (A4)

Name	Unit	*CastWorks™ Glass Fiber Reinforced Gypsum (GRG/GFRG)*
Liters of fuel (Diesel)	l/100km	0.00314
Transport distance	km	805
Capacity utilization (including empty runs)	%	67
Gross density of products transported	kg/m^3	337.0
Capacity utilization volume factor	-	1

4.4 PRODUCT INSTALLATION

The ceiling system must be installed in accordance with Armstrong Ceilings installation guidelines. Our ceiling system installation brochure, “Installing Suspended Ceilings”, is a general application overview, covering essential steps of a basic suspended ceiling installation. You can reference this document at armstrongceilings.com/installationinstructions

TABLE 7. INSTALLATION INTO THE BUILDING (A5)

Name	*CastWorks™ Glass Fiber Reinforced Gypsum (GRG/GFRG)*	Unit %
Ancillary materials	0	kg
Net freshwater consumption specified by water source and fate (X m^3 river water evaporated, X m^3 city water disposed to sewer)	0	m^3
Other resources	0	kg
Electricity consumption	0	kWh
Other energy carriers	0	MJ
Product loss per declared unit	0	kg
Waste materials at the construction site before waste processing, generated by product installation	0.06	kg
Output materials resulting from on-site waste processing	0	kg
Mass of packaging waste specified by type		
Plastic	0.005	kg
Metal	0.000	kg
Cardboard	0.021	kg
Wood	0.005	kg
Biogenic carbon contained in packaging	0.024	kg CO_2
Direct emissions to ambient air, soil and water	–	kg
VOC emissions	≤ 0.5	mg/m^3

4.5 USE

A product's RSL depends on the product properties and reference in-use conditions. The default RSL assumed in this PCR is 30 years for both ceiling and wall products.

4.6 DISPOSAL

End of Life

The end-of-life phase for the ceiling and wall panels was included in the study. End-of-life impacts include landfill disposal of ceiling/wall panels, scrap, and packaging at the end of installation.

TABLE 8. END OF LIFE (C1-C4)

Name		*CastWorks™ Glass Fiber Reinforced Gypsum (GRG/GFRG)*	Unit
Collection process (specified by type)	Collected separately	0	kg
	Collected with mixed construction waste	0	kg
Recovery (specified by type)	Reuse	0	kg
	Recycling	0.151	kg
	Incineration	0	kg
	Incineration with energy recovery	0	kg
	Energy conversion (specify efficiency rate)	0	kg
Disposal (specified by type)	Product for final disposal (landfill)	0.341	kg
Removals of biogenic carbon (excluding packaging)		-0.050	kg CO_2

4.7 REUSE PHASE

TABLE 9. REUSE, RECOVERY, AND/OR RECYCLING POTENTIALS (D), RELEVANT SCENARIO INFORMATION

Name	Value	Unit
Net energy benefit from energy recovery from waste treatment declared as exported energy in C3 (R>0.6)	0	MJ
Net energy benefit from thermal energy due to treatment of waste declared as exported energy in C4 (R<0.6)	0	MJ
Net energy benefit from material flow declared in C3 for energy recovery	0	MJ
Process and conversion efficiencies	–	
Further assumptions for scenario development	–	

5. ENVIRONMENTAL INDICATORS DERIVED FROM LCA

5.1 LCA RESULTS

The Life Cycle Assessment (LCA) was performed according to ISO 14040 guidelines and follows the specific PCR instructions. The cradle-to-gate with options LCA consists of raw material production, transport of raw materials to production facility prior to processing, manufacturing of ceiling and wall panels, packaging; transportation to job site and installation, and end of life.

TABLE 10. DESCRIPTION OF THE SYSTEM BOUNDARY MODULES (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED)

	Production			Construction		Use							End Of Life				Benefits And Loads Beyond System Boundary
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
EPD Type	Raw material supply	Transport	Manufacturing	Transport to site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Deconstruction	Deconstruction	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling Potential
						B6 Operational Energy Use of Building Integrated System During Product Use											
						B7 Operational Water Use of Building Integrated System During Product Use											
Cradle to Gate with Options	X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	MND

5.2 LCA RESULTS FROM LCIA

Life cycle impacts reported below are based on TRACI 2.1 methodology. Results are provided in reference to the declared unit. For the other impact categories, results are presented in the tables below using the ISO 21930 standard and for the declared unit. Because products include biobased content, they store or sequester carbon. Table 11 includes both Global Warming Potential (GWP) excluding biogenic and GWP including biogenic carbon. LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks. These six impact categories are globally deemed mature enough to be included in Type III environmental declarations. Other categories are being developed and defined and LCA should continue making advances in their development. However, the EPD users shall not use additional measures for comparative purposes.

TABLE 11. TRACI 2.1 IMPACT ASSESSMENT FOR 0.093 m² (1 ft²) OF CASTWORKS™ GRG/GFRG*

CastWorks™ Glass Fiber Reinforced Gypsum (GRG/GFRG)								
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C2**	**C4**
GWP, excluding biogenic	kg CO_2 eq.	0.196	0.050	0.404	0.007	0.009	0.002	0.083
GWP, including biogenic	kg CO_2 eq.	0.167	0.050	0.404	0.007	0.021	0.002	0.118
ODP	kg CFC 11 eq.	3.57E-09	1.31E-16	2.31E-13	1.83E-17	-2.06E-16	4.14E-18	5.06E-16
AP	kg SO_2 eq.	2.00E-03	2.36E-04	9.22E-04	1.97E-05	2.01E-05	4.40E-06	3.68E-04
EP	kg N eq.	4.72E-05	2.07E-05	6.12E-05	2.06E-06	2.78E-06	4.63E-07	4.84E-05
SFP	kg O_3 eq.	1.23E-02	5.44E-03	1.10E-02	4.51E-04	-1.58E-04	1.00E-04	1.91E-03
FFD	MJ Surplus	3.13E-01	9.41E-02	7.19E-01	1.32E-02	-3.60E-03	2.98E-03	2.07E-02

*Modules C1 and C3 are null.

TABLE 12. LCA RESULTS - RESOURCE USE FOR 0.093 m² (1 ft²) OF CASTWORKS™ GRG/GFRG (CONT.)

CastWorks™ Glass Fiber Reinforced Gypsum (GRG/GFRG)								
Parameter	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C2**	**C4**
RPRe	MJ, LHV	0.472	0.028	6.535	0.004	-0.188	8.99E-04	1.93E-02
RPRm	MJ, LHV	0.000	0.00E+00	0.00E+00	0.00E+00	0.000	0.00E+00	0.00E+00
NRPRE	MJ, LHV	2.904	0.712	13.403	0.100	-0.038	0.023	0.165
NRPRM	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRDF	m^3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	7.35E-04	9.70E-05	7.76E-03	1.36E-05	2.95E-05	3.08E-06	3.18E-05

*Modules C1 and C3 are null.

TABLE 13. LCA RESULTS: OUTPUT FLOWS AND WASTE CATEGORIES FOR 0.093 m² (1 ft²) OF CASTWORKS™ GRG/GFRG

CastWorks™ Glass Fiber Reinforced Gypsum (GRG/GFRG)									
Parameter	**Description**	**Unit**	**A1**	**A2**	**A3**	**A4**	**A5**	**C2**	**C4**
HWD	Hazardous waste disposed	kg	7.85E-07	2.05E-12	-1.70E-10	2.86E-13	5.29E-10	6.49E-14	4.11E-12
NHWD	NHWD Non-hazardous waste disposed	kg	1.92E-03	6.19E-05	5.48E-01	8.66E-06	4.35E-02	1.96E-06	4.62E-01
HLRW	HLRW High-level radioactive waste, conditioned, to final repository	kg	9.96E-08	2.42E-09	3.26E-06	3.39E-10	-3.05E-09	7.67E-11	2.04E-09
ILLRW	Intermediate- and low-level radioactive waste, conditioned, to final repository	kg	7.21E-05	2.04E-06	2.72E-03	2.85E-07	-2.83E-06	6.46E-08	1.82E-06
CRU	Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR	Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.06E-03	0.00E+00	0.00E+00
MER	Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	Recovered energy exported from the product system	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.80E-03	0.00E+00	0.00E+00

*Modules C1 and C3 are null.

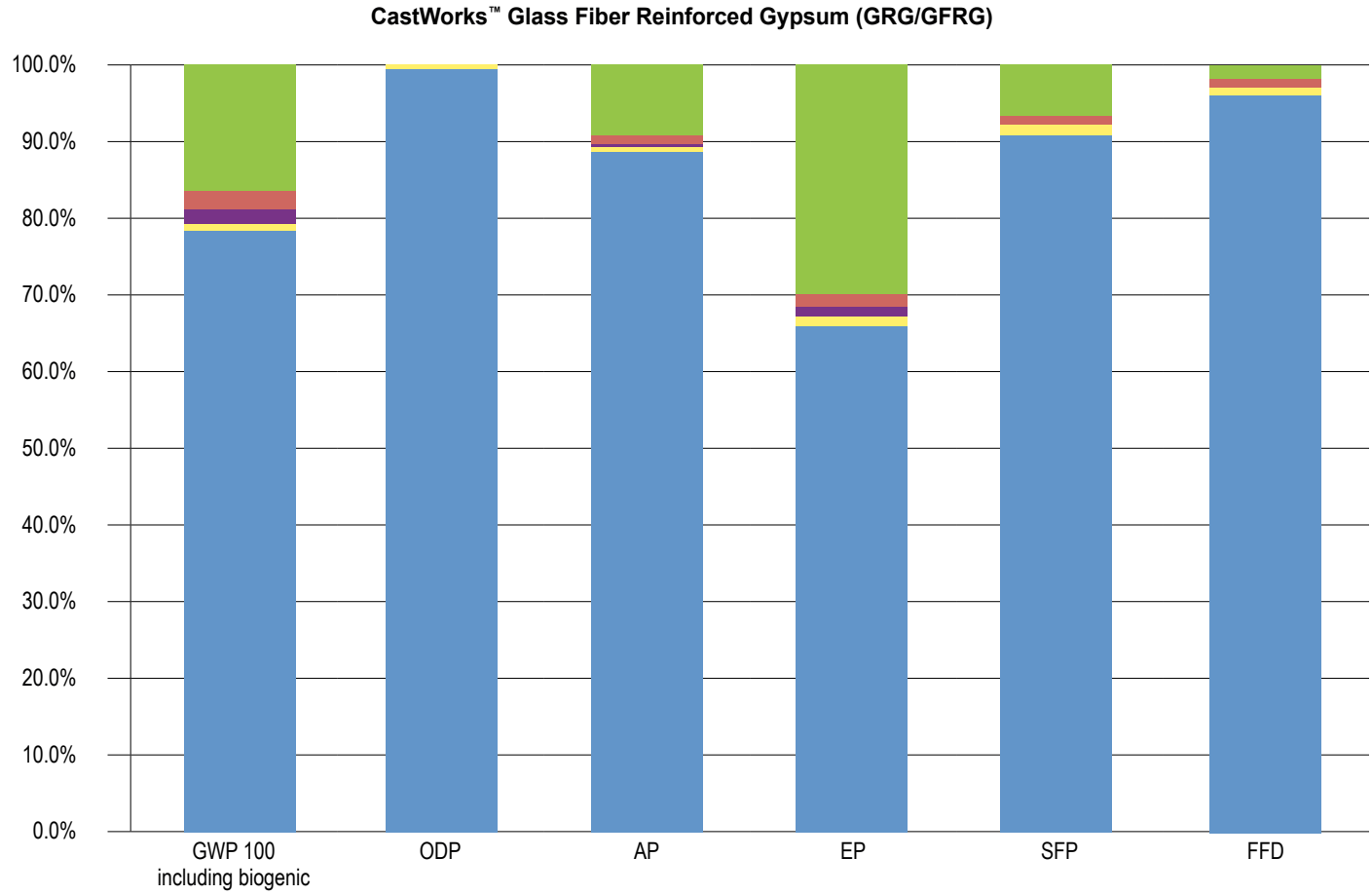
TABLE 14. CARBON EMISSIONS AND REMOVALS PER 0.093 M² (1 FT2) OF CASTWORKS GRG/GFRG

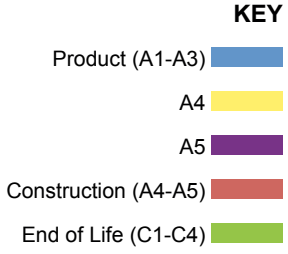
Parameter	**Description**	**Unit**	**CastWorks™ Glass Fiber Reinforced Gypsum (GRG/GFRG)**
BCRP	Biogenic Carbon Removal from Product	[kg CO_2]	-0.0499
BCEP	Biogenic Carbon Emission from Product	[kg CO_2]	0.1864
BCRK	Biogenic Carbon Removal from Packaging	[kg CO_2]	-0.0243
BCEK	Biogenic Carbon Emission from Packaging	[kg CO_2]	0.0104

*Modules C1 and C3 are null.

6. LCA: INTERPRETATION

Based on the LCA Model of the ceiling/wall life cycle covered in this study, it was concluded that the ceiling and wall panel manufacturing process and raw materials in the ceiling/wall panel have the greatest impact on “carbon footprint” as represented by Global Warming Potential [GWP].





Life Cycle Impact Assessment of CastWorks™ Glass Fiber-Reinforced Gypsum (GRG/GFRG) Architectural Forms[1] relative importance in percentage terms for the Production, Use, and End-of-Life stages for the ceiling/wall panel.

[1] Based on U.S. EPA TRACI 2.1 Impact Factors

7. ADDITIONAL ENVIRONMENTAL INFORMATION

7.1 ENVIRONMENT AND HEALTH DURING MANUFACTURING

Armstrong World Industries has a comprehensive environmental, health, and safety management program. Risk reduction begins in the product design process. All products go through a safety, health, and environmental review prior to sale. Armstrong also has a long-standing commitment to the safety and health of all our employees.

Armstrong World Industries is equally committed to reducing our environmental impact. As with safety goals, each manufacturing facility has environmental initiatives focused on responsible use of energy and water, and on waste reduction.

7.2 ENVIRONMENT AND HEALTH DURING INSTALLATION

All recommendations shall be utilized as indicated by SDS and installation guidelines. Specific product SDS and installation instructions can be downloaded at: armstrongceilings.com/commercial/en/technical-downloads.html

7.3 QUALITY

Armstrong World Industries has a robust internal Quality Assurance process that is based on industry-accepted best practices and is led by a team of quality professionals who have been certified by the American Society for Quality. The process involves several hundred different measures made throughout the manufacturing processes. The Armstrong Ceilings acoustical laboratory is ISO 17025 certified and is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

7.4 ENVIRONMENTAL ACTIVITIES AND CERTIFICATIONS

All environmental certifications can be found at: armstrongceilings.com/commercial/en/performance/sustainable-building-design/sustain-ceiling-systems.html

7.5 FURTHER INFORMATION

Additional Information can be found at: armstrongceilings.com

8. PROJECT REPORT AND SUPPORTING DOCUMENTATION

This study provides life cycle inventory and environmental impacts relevant to Armstrong® suspended ceilings. This report is intended to fulfill the reporting requirements in Section 5 of ISO 14044 and Product Category Rules Guidance for Building-Related Products and Services UL® Environments (2021) Part B: Non-Metal Ceiling Panel EPD Requirements.

9. REFERENCES

ASTM International General Program instructions, v8.0, April 29, 2020.

ISO 14025:2006 – Environmental labels and declarations – Type III environmental declarations – Principles and procedures

ISO 14040 -Environmental management – Life Cycle Assessment – Principles and framework, Amd 1: 2020.

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