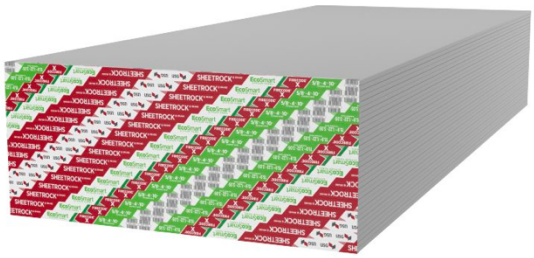
EPD Optimization Assessment



Product: 5/8 in. (15.9 mm) Sheetrock® Brand EcoSmart Panels Firecode® X

Manufacturer: USG Corporation

Current EPD: 5/8 in. (15.9 mm) Sheetrock® Brand EcoSmart Panels Firecode® X. USG. EPD 216 at ASTM International. Valid 6/4/2021-6/4/2026.

Reference EPD: Industry Average EPD for 5/8" Type X Conventional Gypsum Board. Gypsum Association. EPD 10270 at NSF Certification. Valid 4/28/2020-4/28/2025.

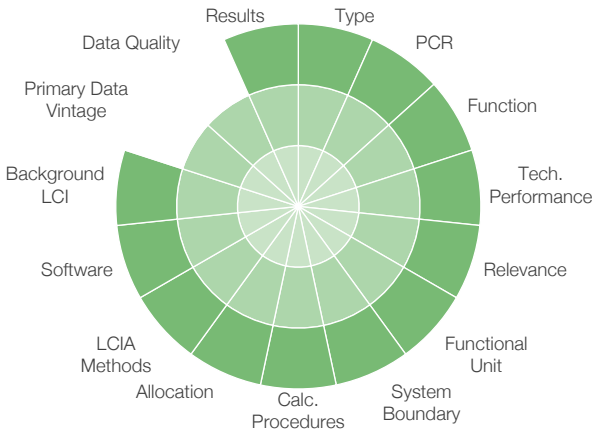
Comparison Type: Current EPD vs Industry-Average EPD

Scope of Comparison: Cradle-to-Gate (A1-A3)

LEED Credit: LEED v4.1 @ 1.5 products

Period of Validity: 1/1/2023-1/1/2026

Comparison Summary



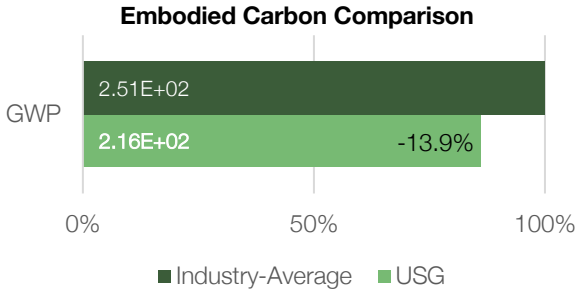
The current EPD was compared to the reference EPD using 15 indicators. A single score of 0 (Not Comparable) or multiple scores of 1 (Problematic for Comparison) would result in the current and reference EPDs not being able to be compared.

For this comparison, while the product-specific EPD from USG and the industry-average EPD from the Gypsum Association meet the criteria for comparability per ISO 14025, USG elected to increase the comparability score by recreating the industry-average results within their newly created model. The primary data from the Gypsum Association industry-average LCA was populated in the product-specific USG model in GaBi to ensure all secondary datasets utilized were the same. The results presented in this optimization assessment utilize this model.

Impacts for 1,000 ft² of Gypsum Panel

Impact Category*	Industry-Average			USG		
	A1-A3	A4-A5	C1-C4	A1-A3	A4-A5	C1-C4
GWP	2.51E+02	1.00E+02	5.59E+01	2.16E+02	8.71E+01	4.71E+01
ODP	5.82E-08	9.27E-08	1.53E-13	1.28E-07	9.53E-08	1.22E-13
AP	2.81E-01	2.08E-01	2.47E-01	3.26E-01	1.73E-01	1.86E-01
EP	2.76E-02	2.60E-02	1.60E-02	3.25E-02	2.16E-02	1.20E-02
POCP	5.25E+00	5.03E+00	5.29E+00	7.04E+00	4.67E+00	4.53E+00
ADP_f	5.77E+02	1.98E+02	1.11E+02	5.49E+02	1.84E+02	9.95E+01

GWP = Global Warming Potential [kg CO_2 eq], ODP = Ozone Depletion Potential [kg CFC 11-eq], AP = Acidification Potential [kg SO_2 eq]
EP = Eutrophication Potential [kg N eq], ADP_f = Abiotic Depletion Potential – Fossil Fuels [MJ surplus energy]
*Note: There are no use phase impacts (B1-B7) so they have been excluded from this table.



Impact Reduction Sources

Sheetrock® Brand EcoSmart Panels Firecode® X (UL Type ULIX™) represent a revolution in wallboard manufacturing, reducing the embodied carbon relative to the industry-average. Developed to answer the demand for more sustainable building products, these 5/8 in. ultralightweight Type X gypsum panels are made possible by modifying the chemical composition of wallboard and employing proprietary manufacturing process technologies. The result is a gypsum panel that weighs up to 28% less than standard 5/8 in. Type C and up to 22% less than Type X. The lighter weight requires less water and less energy for the drying process which aids in fewer carbon emissions and reduces overall project and ceiling installation time.

WAP SUSTAINABILITY CONSULTING
#23-101
Valid Jan 1, 2023 to Jan 1, 2026
LCA/EPD OPTIMIZATION
LEED v4.1
Environmental Product Declarations
Option 2 - 10-20% GWP Reduction

Comparability Assessment

Per ISO 14025, "Type III environmental declarations are intended to allow a purchaser or user to compare the environmental performance of products on a life cycle basis. Therefore, comparability of Type III environmental declarations is critical. The information provided for this comparison shall be transparent in order to allow the purchaser or user to understand the limitations of comparability inherent in the Type III environmental declarations." The table below showcases the criteria utilized to determine if the two EPDs are comparable.

Criteria	Score	Description
Product Category		
Product Type	3	The product types are equivalent.
Product Category Rule	3	The same product category rule was followed for both assessments.
Function	3	The function is the same for both products.
Technical Performance	3	It is assumed the technical performance is equivalent between the two products.
Relevant Comparison	3	USG participated in the industry-average allowing for comparison.
Scope		
Functional Unit	3	The functional units for both products are equivalent.
System Boundary	3	To minimize assumption bias in this comparison, only A1-A3 is considered for both products.
Calculation Procedures	3	To ensure comparability, USG re-modeled the industry-average in GaBi using the USG model and the industry-average primary LCI data.
Allocation	3	The same allocation rules were followed.
LCIA Method	3	The same LCIA method was used and the same indicators reported.
Data and Results		
Software	3	The industry-average EPD utilized SimaPro while USG used GaBi. To allow for comparison, USG re-modeled the industry-average EPD in GaBi.
Background LCI Data	3	The industry-average EPD utilized the ecoinvent database while USG used the GaBi database. To allow for comparison, USG re-modeled the industry-average EPD using GaBi data.
Primary Data Vintage	2	The industry-average EPD utilizes 2017 primary data from manufacturers while USG uses 2019 data.
Data Quality	2	All assumptions are equivalent in the modeling, but the primary data could have different assumptions due to multiple people collecting the data for the industry-average.
Results	3	Results were presented with the same groupings by LCIA indicator.

Based on this comparability assessment, the products in question are deemed comparable for the purposes of LEED credit achievement. It is WAP Sustainability's professional opinion that 5/8 in. (15.9 mm) Sheetrock® Brand EcoSmart Panels Firecode® X from USG Corporation meet the following LEED Materials and Resource Credit, Environmental Product Declaration, Option 2 criteria: GWP Reduction 10+% (valued at 1.5 products for LEED v4.1).

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