

USG BORAL ME & SUSTAINABILITY

Recycled Content

USG Boral ME acoustical ceiling panels contain mineral wool derived from slag, a byproduct of steelmaking, reducing the need to mine and process raw materials and minimizing landfill waste. Many panels also contain recycled paper. Binders are derived from corn and wheat starch, which are renewable agricultural resources. The metal in many of our metal and specialty ceiling and drywall suspension systems includes recycled content. Aluminum offers additional benefits in that it can be fully re-purposed by re-melting and salvaging the metal.

USG Boral ME ceilings = High Recycled Content (HRC)

The Total Recycled Content includes Post-Consumer & Post-Industrial materials: (Post-Consumer & Post-Industrial) Per Federal Trade Commission Environmental Marketing Guides. Recycled Content products may contain some pre-consumer waste, some post-consumer waste or both. A product does not have to contain 100 percent recovered materials to be considered “recycled,” but the higher the percentage of recycled content, the greater the amount of waste that is diverted from disposal.

We use Weighted Recycled Content to refer to the value defined for LEED MR4 as Post-Consumer content + 1/2 Pre-Consumer (Post-Industrial) content.

- Post-Industrial (Pre-Consumer) Materials are generated by manufacturers and processors, and may consist of scrap, trimmings and other by-products that were never used in the consumer market. Post-Industrial and Pre-Consumer are one in the same under the USGBC LEED® rating systems.
- Post-Consumer Material is an end product that has completed its life cycle as a consumer item and would otherwise have been disposed of as a solid waste. Post-consumer materials include recyclables collected in commercial and residential recycling programs, such as office paper, cardboard, aluminum cans, plastics and metals.
- TVOC (Total Volatile Organic Compound) emission measured per ASTM D 5116, State of Washington allows for 500 ug/m³ (50 ppb).
- CHPS (Collaborative for High Performance Schools) follow EPA Section 01350 for VOC emission and determination on PASS.

- Formaldehyde Emissions measured during CHPS testing per Section 01350, for most products CHPS allows 13.5 ppb (Formaldehyde concentration 9 µg/m³).
- LR (Light Reflectance) tested per ASTM C1477
- NRC (Noise Reduction Coefficient) tested per ASTM C423
- CAC (Ceiling Attenuation Class) tested per ASTM 1414
- Zero emissions

Is defined as the quantity less than test chamber background concentrations as required by Section 3.8.4.2 of the “Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, Supersedes previous versions of small-scale environmental chamber testing portion of California Specification 01350, July 15, 2004.” Section 3.8.4.3 states “ Background concentrations in the empty chamber ventilated at 1.0 air changes per hour shall not exceed 2 g/m³ for any individual VOC, and 25 g/m³ for TVOC.”

RELATED USGBC LEED for NC Credits	MR 4.1 & 4.2		Pre-Consumer		EA 1 & EQ 8	EQ Pre 3 ¹ & EQ 9 ¹		Density KG/m ³		EQ 3.2 & EQ 4		MR6	EQ 10 ¹	MR 5.1/5.2		
PRODUCT FAMILY	Class A	FC	Class A	FC	LR	NRC	CAC	Class A	FC	VOC Content or CHPS	Formaldehyde & VOC Emissions	Rapid Renew	Mold Prevention	Raw Materials (% by wt.) / Percent Compliance for Materials extracted, harvested, or recovered and manufactured locally	% Compliance	
Fissured Family ⁴	20.0%	6%	12%	40.0%	0.84-0.87	0.5 ² /0.6 ¹ /0.7 ¹ /0.8 ¹	35-39	240	320	Pass	Low	7.5%	*	Wet Felt Products manufactured at Dammam, Saudi Arabia. Mineral Wool (Pre-consumer %) from China / USA; Perlite 20-50% (over 500 miles); Recycled Paper (Post - consumer % Local); Starch (Rapid renewable% local); and Clay (over 500 miles) 2 - 12%; Embodied Energy 14.6 MJ/Kg	26%/13%	
Plain Family ⁵	20.0%	N/A	12%	N/A	0.88-0.89	0.15	31-35	240	N/A	Pass	Low	8.0%	*		26.0%	
Olympia Micro™ ClimaPlus™	17.0%	6%	22%	40.0%	0.89	0.55 ² /0.65 ¹ /0.7 ¹	35-39	240	320	Pass	Low	7.5%	*		24%/13%	
Perforated / Athena	20.0%	N/A	12%	N/A	0.88	0.5 ² /0.7 ¹	35-37	240	N/A	Pass	Low	8.0%	*		26.0%	
Taiga Hygiene	20.0%	N/A	12%	N/A	0.88	0.15	31-35	240	N/A	Pass	Low	8.0%	YES		26.0%	
Sparta	20.0%	N/A	12%	N/A	0.85	0.15	36	240	N/A	No	Zero	8.0%	N/A		26.0%	
Sonata/Sonata HC	2.5%	N/A	80%	N/A	0.88	0.75	37-40	240	N/A	Pass	Low	7.5%	YES		11.5%	
Clean Room™	N/A	6%	N/A	40.0%	0.79	0.15/0.55	37	N/A	320	No	N/A	7.0%	N/A		13.0%	
Metal Face	N/A	6%	N/A	40.0%	0.79	0.55	37	N/A	320	No	N/A	7.0%	N/A		13%	
Radar™ Ceramic	N/A	0.0%	N/A	45.0%	0.85	0.4	39	N/A	550	Pass/Zero	Low	2.5%	N/A		2.5%	
Halcyon™/Halcyon HC	39.0%	N/A	1%	N/A	0.88	0.85 ² /0.95 ¹ /1 ¹	24-25	72	N/A	No	N/A	0.0%	N/A		Glass Fiber Products manufactured at Dammam, Saudi Arabia. 90% Glass Fiber Base mat (local), 9% Glass Fiber Facing (over 500 miles), 1% Water Base Adhesive (over 500 miles) - Embodied Energy 30.3 MJ/kg	65%
Louna	39.0%	N/A	1%	N/A	0.84	0.85 ² /0.95 ¹ /1 ¹	24-26	90	N/A	No	N/A	0.0%	N/A			65%
Louna HI CAC	45.0%	N/A	41%	N/A	0.84	0.85	42	280	N/A	No	N/A	7.0%	N/A	65%		
Glacier™	0%	0%	71%	71%	0.7	0.65	35	375	390	Pass/Zero	Zero	12.5%	N/A	Cast Products manufactured at Walworth, WI, USA Mineral Wool (Pre-consumer %) made on site; Class A panels 10% Plaster of Paris from East Chicago, IN Starch (Rapid renewable%); and FC panels Clay 14%	0%	
Frost™	0%	0%	71%	71%	0.85	0.55 - 0.7	36-40	425	440	Pass/Zero	Zero	12.5%	N/A		0%	
Sandrift™	0%	0%	71%	71%	0.83	0.55 - 0.7	38	425	440	Pass/Zero	Zero	12.5%	N/A		0%	
Mars™ ClimaPlus™	0%	N/A	75.2%	N/A	0.89	0.7	35	260	N/A	Pass	Low	3%	YES	X-Technology manufactured at Cloquet, MN, USA Mineral Wool (Pre-consumer %) from Red Wing, MN; 5% Polymer Emulsion Starch (Rapid renewable%); and FC panels Clay 20%	0%	
Mars™ ClimaPlus™ High NRC	0%	N/A	77%	N/A	0.89	0.8	35	260	N/A	Pass	Low	3%	YES		0%	
Mars™ ClimaPlus™ HealthCare	0%	N/A	77%	N/A	0.89	0.7 - 0.8	35	260	N/A	Pass	Low	3%	YES		0%	
Millenia™ ClimaPlus™	0%	N/A	75%	N/A	0.87	0.7 - 0.75	35	275	N/A	Pass	Low	1-3.5%	YES		0%	
Eclipse™ ClimaPlus™	0%	0%	77%	62%	0.86	0.6 - 0.7	35	250	310	Pass	Low	1-3%	YES		0%	
Astro® ClimaPlus™	0%	0%	65%	68%	0.86	0.5 - 0.55	35	220	285	Pass	Low	3.5%	YES		0%	
Skyrock Nordic / Classic					0.85	0.85 - 1				Pass	Low					
Wood Tone					0.88	0.15	37	280		No	Zero	8%			26%	
DONN® Brand Hot Dip Galvanized Steel Suspension System	25 to 50%	N/A	6 to 8%	N/A									*	Manufactured at Dammam, Saudi Arabia.	N/A	
USG Boral ME Metal Ceiling	68%	N/A	22%	N/A		0.65								Metal Sheets, Dammam, Saudi Arabia.	0%	

LEGEND: 1- For Schools Credit only 2- For 15mm 3- For 19mm 4- Fissured Family include the following patterns: · Cross Fissured · Omni · Radar™ · Favia (Europa) · Favia Acoustic · Plateau™ (Aurora) · Face Cut 5- Plain Family include the following patterns: · Taiga™ · Olympia II™ · Comet Line · Chessboard · Pedestal · Face Cut 6 - For 25mm 7- MR Credit 7 compliance: Certified Wood 8- For 19mm High NRC Products 9 - For 22mm High NRC Products * - Available upon request

SUSTAINABILITY

The Brundtland commission defined sustainability in 1987 as “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

In line with current understanding, this definition contains environmental, social and economic aspects of human activities in a global context.

Environmental aspects would include, for example, efficiency of use of primary and other resources, pollution, waste and recycling. Social aspects concern, for example, the well-being of employees, health and safety, contributions to society at large, corporate citizenship and the long-term viability of business. The economic aspects are exemplified by profitability, efficiency, stakeholder added value and ROI.

Requirements for sustainable building are:

- Efficient use of energy
- Minimization of emissions
- Utilization of production waste and recycling
- Ascertain the service life
- Flexibility

Sustainable consumption means that resource efficiency will continue to be a main driver in developing our operations. The outcome for our customers is less embodied energy and ground-, water- and air emissions in our products – and a cleaner and healthier environment.