

# Sustainability Tables



Related USGBC LEED Credits	MR 4		EQ 4					MR 5
	Post-Consumer	Pre-Consumer	CHPS	Formaldehyde & VOC Emission	Embodied Energy ~	Approx. Density lbs./cu.ft.	Manufacturer Efficiency	Raw Materials (percentage by weight)
Acoustical sealant	0	0						Limestone, water, acrylic polymer: manufactured at La Mirada, CA (limestone from Lucerne Valley, CA). <b>TVOC content &lt;65 g/L</b> (LEED EQ requires architectural sealants < 250 g/L per Reg. 8, Rule 51)
AX aluminum lay-in ceiling grid	73	22			2.2 kWh/LB**		90%	Recycled Aluminum: manufactured at Oakville, Ontario, Canada. (Aluminum from Newport, OH).
COVER COAT™ compound	0	0				105		50% Limestone, 30% Water, 5% Mica, 5% Latex, & 5% Attapulgit: Manufactured at East Chicago, In (limestone from Quincy, IL); Port Reading, NJ (Limestone from Canaan, CT & York, PA); & Jacksonville, FL (limestone from Sylacauga, AL). TVOC content < 2 g/L.
DUROCK™ cement board	0	20%			3.8 kWh/SF	72		Portland cement & fly ash: manufactured at Baltimore, MD; Detroit, MI; New Orleans, LA; Santa Fe Springs, CA
FIBEROCK® sheathing, AR panels & underlayment	0	95%	pass/zero	zero	2.14 kWh/SF	55	95%	85% gypsum; 10% cardboard cut-offs& 2% wax: manufactured at Gypsum, OH (FGD railed from Westmoreland, PA & cardboard & wax local) <b>Note: only AR &amp; VHI has been tested for emissions, to date!</b>
Glass fiber tape	0	0						Fibrous glass - continuous filament
Joint compound – ready mix (drying type)	0	0			0.03 kWh/SF	67-105	98%	50% Limestone, 30% Water, 5% Mica, 5% Latex, & 5% Attapulgit: <b>North East Plants:</b> Baltimore, MD (limestone from Cockeysville, MD); Gypsum, OH (limestone from Canaan, CT & Perth, ON); & Port Reading, NJ (limestone from Canaan, CT & York, PA). <b>South Central Plants:</b> Bridgeport, AL (limestone from Marble Hill, GA); Chamblee, GA (limestone from Marble Hill & Dalton, GA); East Chicago, IN (limestone from Quincy, IL); Fort Dodge, IA (limestone from Quincy, IL); & Jacksonville, FL (limestone from Sylacauga, AL & Dalton, GA). <b>Western Plants:</b> Auburn, WA (limestone from Seattle, WA); Dallas, TX (limestone from Marble Falls, TX); Galena Park, TX (limestone from Marble Falls, TX); Phoenix, AZ (limestone from Superior, AZ); Sigurd, UT (limestone from Lucerne Valley, CA); & Torrance, CA (limestone from Lucerne Valley, CA). TVOC content < 2 g/L.

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Related USGBC LEED Credits	MR 4		EQ 4					MR 5
	Product Family:	Post-Consumer	Pre-Consumer	CHPS	Formaldehyde & VOC Emission	Embodied Energy ~	Approx. Density lbs./cu.ft.	Manufacturer Efficiency
Joint compound – setting type	0	0			0.05 kWh/SF	40-80	98%	60% Plaster of Paris, 20% Limestone & 10% Mica: <b>North East Plants:</b> Baltimore, MD (plaster from Fort Dodge, IA); Gypsum, OH (plaster from Fort Dodge, IA); & Port Reading NJ (plaster from Fort Dodge, IA). <b>South Central Plants:</b> Chamblee, GA (plaster from Southard, OK); East Chicago, IN (plaster from Southard, OK); Fort Dodge, IA (plaster onsite); & Southard, OK (plaster onsite). <b>Western Plants:</b> Auburn, WA (plaster from Mexico); Dallas, TX (plaster from Southard, OK); Phoenix, AZ (plaster from Southard, OK); & Torrance CA (plaster from Southard, OK).
Metal bead	0	25%			4.4 kWh/LB			Secondary steel: (material location varies)
MICORE™ 160 & 300 panels	18%	32%	Pass	Low	3.4 kWh/SF	3		Perlite, 1% starch, clay; 37% mineral wool; 19% recycled paper: manufactured at Cloquet; MN (All materials local) <b>11% rapid renewable content.</b>
Paper tape	0	0			0.08 kWh/LB		95+%	Paper: manufactured at Gypsum, OH; (paper from Georgetown, SC)
Paper-faced bead	0	25%			0.1 kWh/LB			Steel, paper, non-solvent organic adhesive: manufactured in Auburn, WA (steel from Korea, paper from Georgetown, SC) & Weirton, WV (steel from Pittsburg, PA & paper from Georgetown, SC).
Plaster bonder	0	0						Water (50%) and vinyl acetate polymer: manufactured in Gypsum, OH
RED Top® plaster, regular	0	99%			0.8 kWh/SF	105	98%	Plaster of paris: manufactured at Gypsum, OH (FGD railed from Westmoreland, PA, lime and sand local)
SHEETROCK TUFF-HIDE™ primer-surfacer	0	0					100	80% acrylic polymer, <10% silica, <10% mica: manufactured at Gypsum, OH. <b>TVOC content , 125g/L</b>
Steel framing	0	25%			4.4 kWh/LB			Secondary steel: (material location varies both US and international)
Steel lay-in and drywall ceiling grid	0	25			4.4 kWh/LB		90%	US and foreign steel: manufactured at Cartersville, GA; Oakville, Ontario, Canada; Stockton, CA and Westlake, OH (Steel can specify US material, paint locally supplied).
Veneer plasters	0	0			0.6 kWh/SF	105	98%	Plaster of paris and lime (DIAMOND® Finish), plaster of paris and sand (IMPERIAL® Basecoat & Finish & DIAMOND® Basecoat)

\*\* Embodied energy of aluminum is low due to recycled aluminum does not counting transportation from job to manufacturing or energy to separate from waste.

# Sustainability Tables

USGBC LEED Credits	MR 4.1 & 4.2				EQ 4		MR 5.2
LEVELROCK® Floor Underlayment Products:	Post-Consumer	Pre-Consumer	Embodied Energy	Approx. Density lbs./cu.ft.	VOC	Manufacturer Efficiency	Plant Location; Raw Materials (%s by weight)
LEVELROCK 2500, 3500, RH (Radiant Heat), and Commercial RH (Radiant Heat) green floor underlayment	0	85	3 MJ/kg	115 - 120	None	98%	Gypsum, OH; FGD gypsum from Westmoreland, PA
LEVELROCK® 2500, 3500, 4500, RH (Radiant Heat) & Commercial RH (Radiant Heat) floor underlayment	0	0	3 MJ/kg	115 - 120	None	98%	Southard, OK; plaster of paris, local
	0	0	3 MJ/kg		None	98%	Fort Dodge, IA; plaster of paris, local
	0	15	3 MJ/kg		None	98%	Baltimore, MA; plaster of paris from Nova Scotia, Canada
LEVELROCK® CSD™ floor underlayment (corrugated steel deck)	0	15	3 MJ/kg	120	None	98%	Baltimore, MA; plaster of paris from Nova Scotia, Canada
	0	0	3 MJ/kg	120	None	98%	Southard, OK; plaster of paris, local
LEVELROCK® PROFLOW™, 2500, 3500, 4500, RH, Commercial RH floor underlayment (pre-sanded)	0	0	3 MJ/kg	115-130	None	98%	Southard, OK; plaster of paris and sand, local.
LEVELROCK® SLC™ 200, 300 & 400 floor underlayment (self-Leveling cement)	0	0	3 MJ/kg	120	None	98%	Southard, OK

**Note:** USG uses more recaptured (FGD or flue gas desulfurization) gypsum than any other competitive supplier, over 3 million tons in 2003. However, this content changes from plant to plant and even day to day at any one plant due to availability. The recycled contents provided in these tables are approximate based on plant averages. Most of the power plants, which produce this by-product FGD (Flue Gas Desulfurization) gypsum or recaptured gypsum, are east of the Mississippi River. While this by-product gypsum is not available everywhere in North America, we do have plants strategically located to meet your needs. Evaluation should be made per job on the benefits of the use of this material over natural gypsum in the production of LEVELROCK® underlayment used in your project. Using locally produced products like LEVELROCK® underlayment may be more environmentally friendly than shipping LEVELROCK® green floor underlayment across the country to take advantage of the high recycled content.

# Sustainability Tables

SHEETROCK® gypsum panels	MR 4.1 & 4.2			MR 5.1 & 5.2 – Manufacturing Location & Raw Material Locations
Plant Locations	Post Consumer	Pre-Consumer	Recycle Content	94% Gypsum, 5% Recycled Paper, 1% Starch; Special panel with wax and glass fiber
Aliquippa, PA	5%	94%	99%	FGD gypsum from Pleasants, WV; paper from Oakfield, NY
Baltimore, MD	5%	19%	24%	Natural gypsum shipped from Nova Scotia; FGD gypsum from Westmoreland, PA; paper from Clark, NJ
Bridgeport, AL	5%	94%	99%	FGD gypsum railed from Jefferson, KY, paper trucked from Jacksonville, FL
East Chicago, IN	5%	94%	99%	FGD gypsum from Porter, IN; paper from Gypsum, OH
Empire, NV	5%	0%	5%	Natural gypsum onsite; paper from South Gate, CA
Galena Park, TX	5%	94%	99%	FGD gypsum from Brown, OH; paper local
Hagersville, ON	5%	24%	29%	Natural gypsum onsite; FGD gypsum from Westmoreland, PA; paper from Clark and Oakfield, NY
Jacksonville, FL	5%	14%	19%	Natural gypsum shipped from Nova Scotia, Canada; FGD gypsum from Duval, FL; paper local
Montreal, Quebec	5%	94%	99%	FGD from New Brunswick, Canada; paper from Clark, NY
Norfolk, VA	5%	9%	14%	Natural gypsum shipped from Nova Scotia, Canada; FGD gypsum from Chesapeake, VA; paper trucked from Oakfield, NY
Plaster City, CA	9%	0%	9%	Natural gypsum onsite; paper from South Gate, CA
Rainier, WA	16%	0%	16%	Natural gypsum from Mexico; paper railed from South Gate, CA
Shoals, IN	5%	24%	29%	Natural gypsum onsite, FGD gypsum from Pike, IN; paper from Kansas City, MS
Sigard, UT	5%	0%	5%	Natural gypsum onsite; paper railed from Kansas City, MS
Southard, OK	5%	0%	5%	Natural gypsum onsite; paper from Kansas City, MS
Sperry, IA	5%	5%	10%	Natural gypsum onsite; paper from Gypsum, OH
Stony Point, NY	9%	0%	9%	Natural gypsum barged from Nova Scotia; paper from Oakfield, NY
Sweetwater, TX	5%	0%	5%	Natural gypsum onsite, paper from Galena Park, TX
Washington, PA	5%	94%	99%	FGD gypsum from York, PA

MR Credit 6: All SHEETROCK gypsum panels contain about 1% starch by weight, starch is a rapidly renewing material.

EQ Credit 4: All SHEETROCK gypsum panels are **zero emitting** VOC/formaldehyde products and are listed on the [www.chps.net](http://www.chps.net) Low Emitting Product site.

Embodied energy of SHEETROCK gypsum panels is about 1.3 kWh/SF for ½” regular and at a density of 43-50 lbs./cu. ft..

SHEETROCK gypsum panels’ Plant Efficiencies run over 95% (over 95% of all solid materials raw materials exit the plant in a finished product & 3% is used to create slutters, drywall strips used to separate lifts).

# Sustainability Tables

Related USGBC LEED for Schools Credits		MR 4.1 & 4.2				EQ 8	EQ Pre 3 & EQ 9			EQ 3.2 & EQ 4		MR 6	MR 5.1/5.2 & EQ 10
Product Family: Acoustical Panels & Tiles		Post-Consumer		Pre-Consumer		LR	NRC	CAC	Approx. Density lbs/cu.ft.	CHPS	Formaldehyde & VOC Emissions	Rapid Renew	Raw Materials/Comments (percentage by weight)
		Class A	FC	Class A	FC								
'X'-technology - Cloquet, MN	ECLIPSE™ CLIMAPLUS™ (Illusion)	0%	0%	77%	62%	.84	.70	35	17	Pass	Low	1-2%	<b>'X'-technology manufactured at Cloquet, MN</b>  Slag wool from Red Wing, MN; recycled paper (local), starch (local) and clay (over 500 miles)  Estimated embodied energy ~ 3.5 kWh/SF for a 17 lbs/cu.ft. ¾" thick panel
	MILLENNIA™ CLIMAPLUS™ (Illusion) & High NRC	0%	0%	75%	62%	.85	.70	35	17			1-3%	
	ORION™ 210 CLIMAPLUS™	0%	NA	84%	NA	.76	.65	25	14-17			2%	
	ORION™ 270 CLIMAPLUS™	0%	NA	78%	NA	.86	.80	25	14-17	Pass	Low	2%	
	MARS™ CLIMAPLUS™	0%	NA	76%	NA	.92	.70	35	17	Pass	Low	2%	
	MARS™ CLIMAPLUS™ High NRC	0%	NA	77%	NA	.92	.70	35	17			2%	
Cast products - Wallworth, WI	BRIO™ CLIMAPLUS™	0%	0%	71%	70%	.81	.70	35	20	Pass/ Zero	Zero	12.5%	<b>Cast products manufactured at Wallworth, WI</b>  Slag wool (made onsite, slag within 100 miles), starch (local), plaster of paris (within 100 miles), and clay (over 500 miles)  Estimated Embodied Energy ~ 4.6 kWh/SF for a 20 lbs/cu.ft. ¾" thick panel
	"F" FISSURED™	0%	0%	71%	70%	.79	.70	35	24			12.5%	
	FRESCO™ CLIMAPLUS™	0%	0%	71%	70%	.81	.70	35	20			12.5%	
	FROST,™ FROST™ CLIMAPLUS™	0%	0%	71%	70%	.82	.70	40	24			12.5%	
	GLACIER™	0%	0%	71%	70%	.69	.70	35	22-24			12.5%	
	SANDRIFT™ CLIMAPLUS™	0%	0%	71%	70%	.83	.70	40	20			12.5%	
	SUMMIT™ CLIMAPLUS™	NA	0%	NA	63%	.82	.70	38	24			11%	
Wet Felt Products - Greenville, MS	OLYMPIA™ MICRO CLIMAPLUS™ (Illusion)	13%	NA	39%	NA	.88	.50	35	18	Pass	Low	8%	<b>WetFelt Products manufactured at Greenville, MS</b>  Slag wool railed from Red Wing, MN; perlite railed from Socorro, NM; Recycled paper from Senatobia, MS; Starch from Decatur, AL; and clay from Crenshaw, MS  Embodied energy ~ 3.5 kWh/SF for a 17 lbs/cu.ft. ¾" thick panel
	ASPEN™ (Illusion)	16%	NA	13%	NA	.87	.55	35	18-22			7%	
	PEBBLED™ CLIMAPLUS™	17%	NA	17%	NA	.87	.55	35	14			6.5%	
	ROCK FACE™ CLIMAPLUS™	NA	6%	NA	43%	.84	.55	35	24			7%	
	TOUCHSTONE™ CLIMAPLUS™	NA	6%	NA	43%	.86	.55	35	26			7%	
	RADAR™ CLIMAPLUS™ (Illusion)	16%	6%	13%	43%	.84	.55	35	13-14			7%	
	FISSURED™	17%	6%	8%	43%	.81	.55	35	12-20			7%	
	RADAR™ (Illusion)	17%	6%	8%	43%	.85	.55/.60	33	13-14			7%	

# Sustainability Tables

USGBC LEED Credits		MR 4.1 & 4.2				EQ 8				EQ 4			MR 5.1 & 5.2
Product Family: Acoustical Panels & Tiles		Post-Consumer		Pre-Consumer		LR	NRC	CAC	Approx. Density lbs/cu.ft.	CHPS	Formaldehyde & VOC Emissions	Rapid Renew	Raw Materials/Comments (percentage by weight)
		Class A	FC	Class A	FC								
Wet felt products - Cloquet, MN	ASTRO™ CLIMAPLUS™ (Illusion)	0%	0%	65%	69%	.85	.55	35	18-21	Pass	Low	3%	<b>Wet felt products manufactured at Cloquet, MN;</b>  Slag wool from Red Wing, MS, perlite (within 500 miles); recycled paper (local); starch (local; clay (over 500 miles)  Estimated Embodied Energy ~ 3.5 kWh/SF for a 17 lbs./cu.ft. ¾" thick panel
	FISSURED™	18%	6%	7%	44%	.82	.50/.55	35	12-20			6-7%	
	RADAR™ CLIMAPLUS™ (Illusion)	13%	6%	31%	44%	.84	.55	33	13-14			6-10%	
	RADAR™ (Illusion)	18%	6%	7%	44%	.85	.55/.60	33	13-14			6-7%	
	CLEAN ROOM™ CLIMAPLUS™	NA	6%	NA	45%	.79	-.60/.55	35	21			6%	
	RADAR™ Ceramic CLIMAPLUS™	NA	0%	NA	45%	.82	.50	40	26	Pass/ Zero	Zero	2%	
	RADAR™ CLIMAPLUS™ High CAC/NRC	NA	1%	NA	57%	.84	.55/.70	40/35	18	Pass	Low	10%	

USGBC LEED Credits		MR 4.1 & 4.2				EQ 8				EQ 4			MR 5.1 & 5.2
Product Family: Specialty Panels & Tiles		Post-Consumer		Pre-Consumer		LR	NRC	CAC	Approx. Density lbs/cu.ft.	CHPS	Formaldehyde & VOC Emissions	Rapid Renew	Raw Materials/Comments (%s by weight)
		Class A	FC	Class A	FC								
	HALCYON™ CLIMAPLUS™ (varies w/ thickness and backing)	39%	NA	1%	NA	.88	.90/1.00	20/30	6	No	Meets state of Washington	0%	Estimated Embodied Energy ~4.0 kWh/SF
	PREMIER HI-LITE™ CLIMAPLUS™	8%	NA	23%	NA	.76	.60/.75	20	28			0%	Glass fiber Products Manufactured at Greenville, MS
	PREMIER NUBBY™ CLIMAPLUS™ (varies w/ thickness and backing)	29%	NA	0%	NA	.87	.85/.90	20/25	6			0%	
	SHEETROCK™ lay-in ceiling panel CLIMAPLUS™	NA	5%	NA	23%	.77	—	35/40	48	No	Meets state of Washington	1%	Gypsum and glass fiber product manufactured at Shoals, IN; Sweetwater, TX; Stony Point, NY; and Plaster City, CA
	SHEETROCK™ lay-in CLEAN ROOM	NA	5%	NA	23%	.77	—	40	48	No	Meets state of Washington	1%	Gypsum and glass fiber product manufactured at Sweetwater, TX

# Sustainability Tables

The above information is the values for each product from various plant locations average over the year of 2006, content changes from plant to plant and even day to day at any one plant due to availability.

USG is committed to provide replicable scientific data supporting our product claims, and is committed to marketing conduct inline with the letter and spirit of the Federal Trade Commission Environmental Marketing Guides 16 C.F.R. § 260.7(d).

**LEED is a guideline for building solutions established by the USGBC — Products are NOT LEED certified, however they can assist on obtaining credits.**

## Test Protocols:

Recycled Content (**Post-Consumer & Post-Industrial**) per Federal Trade Commission Environmental Marketing Guides.

**Post-Industrial** and **Pre-Consumer** are **one** in the same under the USGBC LEED Rating systems!

**LR** (Light Reflections) tested per ASTM C1477.

**NRC** (Noise Reduction Coefficient per ASTM C423.

**CAC** (Ceiling Attenuation Class) tested per ASTM 1414.

**TVOC** (Total Volatile Organic Compound) emission measured per ASTM D 5116, State of Washington allows for 500 ug/m<sup>3</sup>.

**CHPS** (Collaborative for High Performance Schools) follow EPA Section 01350 for VOC's emission and determination on PASS.

**Formaldehyde** emissions measured during CHPS testing per Section 01350, for most products CHPS allows 13.5 ppb & State of Washington allows for 50 ppb.

**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, Supercedes 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 µg m<sup>-3</sup> for any individual VOC, and 25 µg m<sup>-3</sup> for TVOC.

**Embodied Energy** calculations for USG manufactured products and raw materials are based on 'Cradle to Gate' and averages for all plants within North America from Life Cycle Assessment studies conducted by USG following ISO 14040: 2006 Guidelines.

**Estimated Embodied Energy** calculations are based on public 'Cradle to Gate' information from Life Cycle Assessment studies conducted in Canada, Europe and Australia.

\*\* Embodied energy of aluminum is low due to recycled aluminum does not counting transportation from job to manufacturing or energy to separate from waste.

## **Trademarks**

The following are trademarks of USG Corporation or a related company: ASPEN, ASTRO, BRIO, CLEAN ROOM, CLIMAPLUS, DUROCK, ECLIPSE, FIBEROCK, "F" FISSURED, FISSURED, FRESCO, FROST, GLACIER, HALCYON, MARS, MICORE, MILLENNIA, OLYMPIA MICRO, ORION, PEBBLED, PREMIER HI-LITE, PREMIER NUBBY, RADAR, RED TOP, ROCK FACE, SANDRIFT, SHEETROCK, SUMMIT, TOUCHSTONE, TUFF-HIDE. LEED is a registered trademark of the U.S. Green Building Council.

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