



ENVIRONMENTALLY CONNECTED

LEED SUPPORT GUIDE

v3 and v4

INSULATED METAL PANELS FOR
SUSTAINABILITY & ENERGY EFFICIENCY



Metl-Span® LEED® support material is provided to help architects, specifiers, and design professionals identify the sustainability benefits, attributes and performance criteria of insulated metal panels relative to qualifying for credits within the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Green Building Rating System.



LEED® Support v3



Heat Island Effect: Roof (1 Point)

Roofing materials with a Solar Reflectance Index (SRI) greater than or equal to 78 for low-sloped roof applications and 29 for steep-sloped roof applications, used on at least 75% of the roof's surface, will qualify for this credit. Metl-Span CFR insulated metal roof panels coated in most colors from our standard color chart for steep-sloped roof and two colors for low-sloped roof applications meet or exceed the SRI requirements to claim one point in **SS Credit 7.2**.



Building Reuse: Maintain Existing Walls, Floors & Roof (1-3 Points)

Metl-Span insulated metal wall panels and/or ThermalSafe® mineral wool panels used in an existing building's envelope or structure can be disassembled, moved, and reused for the envelope/structure of a new project, contributing to points for maintaining at least 55% of the surface area of existing building structure and envelope in **MR Credit 1.1**.



Building Reuse: Maintain Interior Non-Structural Elements (1 Point)

Metl-Span insulated metal panels and/or ThermalSafe mineral wool panels used in a building's interior can be disassembled, moved, and reused for the interior of a new project, contributing to points for using existing interior non-structural elements in at least 50% (by area) of the completed building in **MR Credit 1.2**.



Materials Reuse (1 or 2 Points)

Metl-Span insulated metal panels, both interior and exterior, can be disassembled, moved, and reused for a new project, contributing to points for using salvaged, refurbished or reused materials such that the sum of these materials constitute at least 5% (based on cost) of the total value of materials on the project in **MR Credit 3**.



Recycled Content (1 or 2 Points)

Steel faces on Metl-Span insulated metal panels, single-skin metal panels, have a post-consumer recycled content equal to 19.8% and pre-consumer recycled content equal to 14.4%. The polyurethane foam core has a pre-consumer recycled content of 7.32% and 0% post-consumer; while the mineral wool core contains 40% pre-consumer and 0% post-consumer recycled content*. These percentages of recycled content contribute to using materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project in **MR Credit 4**.

* recycle percentages are subject to change.

LEED® CREDIT CATEGORY LEGEND



IP
INTEGRATED
PROCESS



SS
SUSTAINABLE
SITES



MR
MATERIALS &
RESOURCES



IEQ
INDOOR
ENVIRONMENTAL
QUALITY



EA
ENERGY &
ATMOSPHERE



WE
WATER
EFFICIENCY



ID
INNOVATION
IN DESIGN



Rapidly Renewable Materials (1 Point)

The foam core in Metl-Span insulated metal wall panels and CFR roof panels contains a component that contributes to one point for using rapidly renewable building materials and products (made from plants that are typically harvested within a ten-year cycle or shorter) for 2.5% of the total value of all building materials and products used in the project (based on cost) in **MR Credit 6**.



Low-Emitting Materials: Adhesives & Sealants (1 Point)

All adhesives and sealants must comply with the standards of the South Coast Air Quality Management District, Rule #1168. For architectural sealants, the VOC maximum limit is 250 grams/liter. The sealants supplied with Metl-Span insulated metal wall panels, ThermalSafe mineral wool panels and CFR roof panels have VOC contents below the maximum limit, contributing to one point for all adhesives and sealants used on the interior of the building complying with stated standards in **IEQ Credit 4.1**.



Daylight & Views-Daylight (1 Point)

The use of the fully integrated Metl-Vision™ window system with horizontal Metl-Span insulated metal wall panels can significantly contribute to points for demonstrating that a minimum daylight illumination level of 25 footcandles has been achieved in a minimum of 75% of the regularly occupied area in **IEQ Credit 8.1**.



Minimum Energy Performance (REQUIRED)

Metl-Span insulated metal panels will contribute to higher energy efficiency of a building that must comply with a 10% improvement in the performance compared to benchmark rating based on ASHRAE/IESNA Standard 90.1-2007 (with errata but without addenda) in **EA Prerequisite 2**.

LEED® Support v3



Optimize Energy Performance (1-19 Points)

Metl-Span insulated metal panels have been independently tested using the ASTM C1363 Hot Box method for thermal transmittance. The results meet or surpass the minimums outlined in the ASHRAE/IESNA Standard 90.1-2007. Using Metl-Span insulated metal panels will considerably contribute to points for the building demonstrating a percentage improvement in the proposed building performance rating compared to the baseline performance rating by a whole building project simulation in **EA Credit 1**.



Water Efficient Landscaping (2-4 Points)

Metl-Span CFR insulated metal roof panels, integrated into a building's rainwater harvesting system, can contribute to a point for reducing potable water consumption for irrigation by 50% from a calculated mid-summer baseline case or using captured rainwater for non-potable uses for irrigation in **WE Credit 1**.



Innovative Wastewater Technologies (2 Points)

Metl-Span CFR insulated metal roof panels, integrated into a building's rainwater harvesting system, can help to reduce potable water used for building sewage conveyance by 50% as described in **WE Credit 2**.



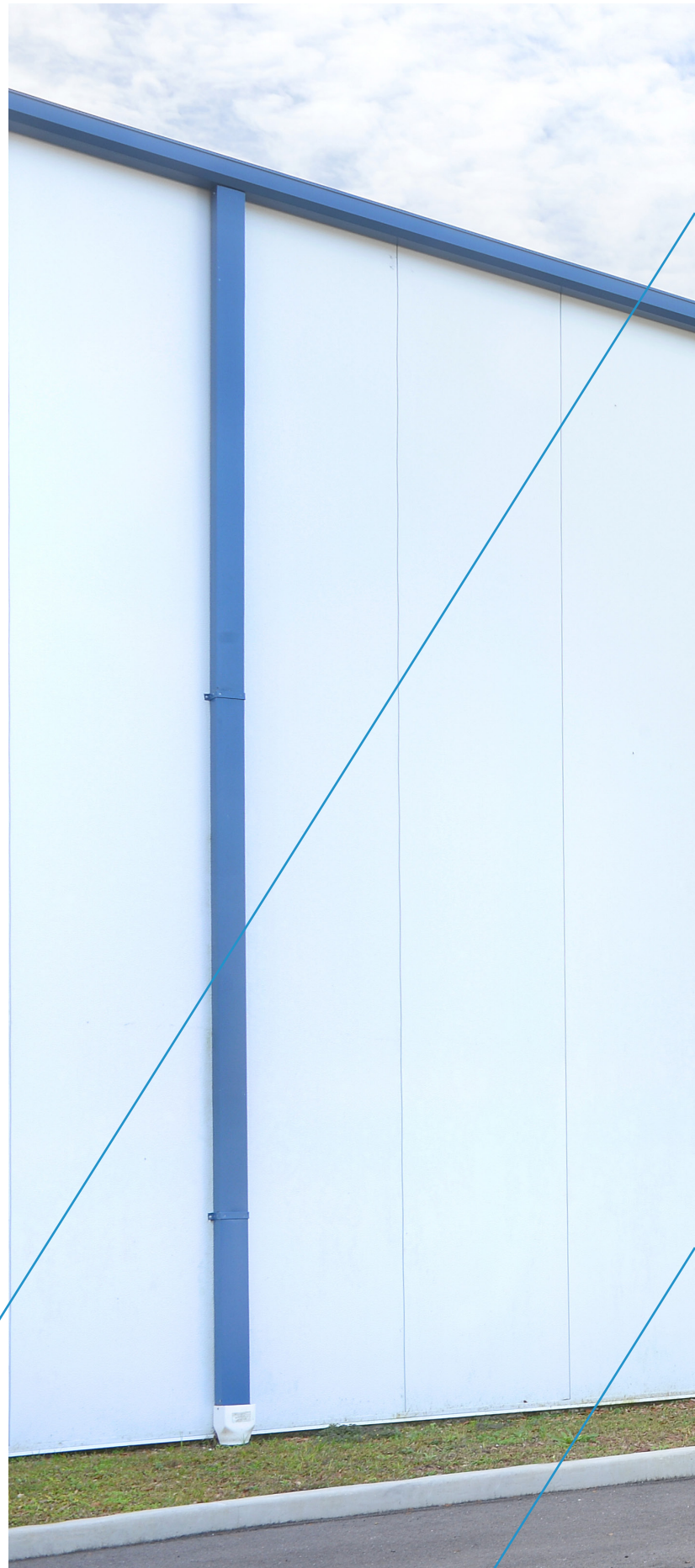
Water Use Reduction (2-4 Points)

Metl-Span CFR insulated metal roof panels, integrated into a building's rainwater harvesting system, can contribute to points for employing a strategy that in aggregate uses at least 20% less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements in **WE Credit 3**.



Innovation in Design (1-5 Points)

Metl-Span insulated metal wall panels, ThermalSafe mineral wool panels, CFR roof panels and/or the Metl-Vision window system integrated into a building's overall design can contribute to points if the building's design team applies strategies or measures that demonstrate performance above the requirements in categories and /or innovative performance not specifically addressed by LEED in **ID Credits 1.1 to 1.4**.



ROOF PANELS



Integrated Process (1 Point)

Preliminary “simple box” energy modeling can be positively impacted by the thermal performance of an insulated metal roof system used on the building envelope.



Heat Island Reduction (2 Points)

Metl-Span insulated metal roofing systems are available in colors with paint formulations that contain infrared reflective pigments. The solar reflectance of the colors meet or exceed the Solar Reflectance Index criteria for low or steep slope applications.



Rainwater Management (3 Points)

A Metl-Span insulated metal roof system that is integrated with a rainwater capture system can be used for landscape irrigation and reducing outdoor water consumption.



Outdoor Water Use Reduction (2 Points)

A Metl-Span insulated metal roof system that is integrated with a rainwater capture system can be used for landscape irrigation and reducing outdoor water consumption.



Indoor Water Use Reduction (6 Points)

A Metl-Span insulated metal roof system that is integrated with a rainwater capture system which is plumbed into a graywater system inside the building can help to reduce potable water consumption for uses other than drinking and washing.



Prerequisite – Minimum Energy Performance (Required)

A Metl-Span insulated metal roof system will contribute to higher required energy efficiency of a building that must comply with a 5% improvement in the performance compared to a benchmark rating based on ASHRAE 90.1 2010, Appendix G.



Optimize Energy Performance (18 Points)

Metl-Span insulated metal roof systems can improve energy efficiency of the building project. The cool colors available can also reduce heat gain and heat loss from the building.



Renewable Energy Production (3 Points)

Designing a building-integrated photovoltaic system attached to a Metl-Span insulated metal roof system can reduce environmental harm associated with fossil fuel energy production.



Prerequisite Construction & Demolition Waste Management Planning (Required)

Metl-Span insulated metal roofing panels are recyclable and plans can be made for the construction waste to be diverted from landfills.



Building Life-Cycle Impact Reduction (3 Points)

An industry-wide Cradle-to-Gate Life Cycle Assessment of rollformed metal roofing has been done by Metl-Span. The environmental impact data can be used in a whole building LCA.



Building Product Disclosure & Optimization – Environmental Product Declarations (2 Points)

An industry-wide Environmental Product Declaration exists for rollformed metal roof panels by Metl-Span. They can be one of the 20 permanently installed products analyzed for this credit. Metal roof panels are manufactured in: Lewisville, TX; Prince George, VA; Las Vegas, NV. Location of the project site will determine the number of applicable points.



Building Product Disclosure & Optimization – Sourcing of Raw Materials (2 Points)

The pre- and post-consumer recycled content of Metl-Span insulated metal roof panels can be used in the credit achievement calculation. Alternatively, a publicly-released report from the raw material suppliers complies with LEEDv4. Metal roof panels are manufactured in: Lewisville, TX; Prince George, VA; Las Vegas, NV. Location of the project site will determine the number of applicable points.



Building Product Disclosure & Optimization – Material Ingredients (2 Points)

The material ingredients in Metl-Span's insulated metal roof panels are available in our Health Product Declaration report. Optimization of the ingredients is dependent on the methodology chosen for selecting products. Metal roof panels are manufactured in: Lewisville, TX; Prince George, VA; Las Vegas, NV. Location of the project site will determine the number of applicable points.

ROOF PANELS



Construction & Demolition Waste Management (2 Points)

Metl-Span insulated metal roof panels are recyclable and can reduce the construction and demolition waste disposed of in landfills.



Low-Emitting Materials (3 Points)

Sealants, adhesives, paints and coatings used with Metl-Span insulated metal roof panels meet the VOC and chemical content requirements for CDPH v1.1-2010 and SCAQMD Rule 1113.



Thermal Comfort (1 Point)

Metl-Span insulated metal roof panels have excellent thermal performance which allows them to be used to optimize the design of a building envelope to ensure thermal comfort.



Innovation (5 Points)

Using design strategies or measures for metal roof panels and systems that demonstrate performance above the requirements of LEED v4 and/or innovative performance not specifically addressed by LEED v4 can comply with this credit.



WALL PANELS



Integrated Process (1 Point)

Preliminary “simple box” energy modeling can be positively impacted by using adequately insulated metal wall panels and/or ThermalSafe® mineral wool panels.



Prerequisite – Minimum Energy Performance (Required)

Properly insulated metal wall panels and/or ThermalSafe mineral wool panels by Metl-Span can contribute to a building achieving a 5% improvement in performance compared against a reference building based on ASHRAE 90.1 2010, Appendix G.



Optimize Energy Performance (18 Points)

Properly insulated metal wall panels have been tested for thermal transmittance per ASTM C1363 with results that surpass the minimum levels outlined in the standard.



Prerequisite Construction & Demolition Waste Management Planning (Required)

Metl-Span insulated metal wall panels and/or ThermalSafe mineral wool panels are recyclable and plans can be made for the construction waste to be diverted from landfills.



Building Life-Cycle Impact Reduction (3 Points)

Industry-wide Cradle-to-Gate Life Cycle Assessments of rollformed metal wall panels and metal composite material panels is offered by Metl-Span. The environmental impact data can be used in a whole building LCA whole building LCA.



Building Product Disclosure and Optimization – Environmental Product Declarations (2 Points)

An industry-wide Environmental Product Declaration exists for rollformed metal wall panels and composite material panels by Metl-Span. They can be one of the 20 permanently installed products analyzed for this credit. Our metal wall panels and metal composite material panels are manufactured in: Lewisville, TX; Prince George, VA; Las Vegas, NV; Shelbyville, IN; Mattoon, IL; and Hamilton, Ontario. The location of the project site will determine the number of applicable points.



Building Product Disclosure & Optimization – Sourcing of Raw Materials (2 Points)

The pre- and post-consumer recycled content of insulated metal wall panels and/or ThermalSafe mineral wool panels by Metl-Span can be used in the credit achievement calculation. Alternatively, a publicly released report from the raw material suppliers complies with LEED v4. Our metal wall panels and metal composite material panels are manufactured in: Lewisville, TX; Prince George, VA; Las Vegas, NV; Shelbyville, IN; Mattoon, IL; and Hamilton, Ontario. The location of the project site will determine the number of applicable points.



Building Product Disclosure & Optimization Material Ingredients (2 Points)

The material ingredients in Metl-Span’s metal wall panels are available in our Health Product Declaration report. Optimization of the ingredients is dependent on the methodology chosen for selecting products. Our metal panels are manufactured in: Lewisville, TX; Prince George, VA; Las Vegas, NV; Shelbyville, IN; Mattoon, IL; and Hamilton, Ontario. Location of the project site will determine the number of applicable points.



Construction & Demolition Waste Management (2 Points)

Metal wall panels are recyclable and can reduce the construction and demolition waste disposed of in landfills.



Indoor Environmental Quality - Minimum Acoustic Performance (Required)

Metl-Span insulated metal wall panels and/or ThermalSafe mineral wool panels have been tested to have a Sound Transmission Coefficient which helps to improve the acoustics of a building.



Acoustic Performance (1 Point)

Properly insulated metal wall panels and/or ThermalSafe mineral wool panels by Metl-Span can meet the LEED criteria for composite sound transmission class.



Low-Emitting Materials (3 Points)

Sealants, adhesives, paints and coatings used with insulated metal wall panel systems and/or ThermalSafe mineral wool panels meet the VOC and chemical content requirements for CDPH v1.1-2010 and SCAQMD Rule 1113.



Thermal Comfort (1 Point)

Properly insulated metal wall panels and/or ThermalSafe mineral wool panels by Metl-Span have excellent thermal performance that allows them to be used to optimize the design of a building envelope to ensure thermal comfort.



Innovation (5 Points)

Using design strategies or measures for metal wall panels that demonstrate performance above the requirements of LEED v4 and/or innovative performance not specifically addressed by LEED v4 can comply with this credit.



Exterior Color Reflectivity and Emissivity Values

	Initial Reflectivity*	Initial Emissivity*	Solar Reflectance Index*
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STANDARD I EXTERIOR COLORS

Polar White	0.70	0.86	85
Sandstone	0.60	0.86	71

STANDARD II EXTERIOR COLORS

Almond	0.63	0.86	75
Brownstone	0.47	0.86	53
Regal Gray	0.55	0.86	64

STANDARD SP EXTERIOR COLORS

Ash Gray	0.45	0.86	50
Light Stone	0.56	0.87	66
Winter White	0.67	0.86	81

PREMIUM I EXTERIOR COLORS

Aegean Blue	0.29	0.87	29
Brite Red	0.49	0.84	55
Classic Green	0.27	0.86	26
Colonial Red	0.34	0.86	35
Harbor Blue	0.28	0.86	27
Hemlock Green	0.30	0.86	30
Hunter Green	0.35	0.86	37
Leaf Green	0.29	0.86	29
Medium Bronze	0.33	0.86	34
Natural Patina	0.41	0.87	45
Pacific Blue	0.29	0.86	29
Pewter	0.33	0.86	34
Regal Blue	0.29	0.85	28
Slate Gray	0.37	0.86	39
Smoke Gray	0.50	0.86	57
Snow White	0.65	0.86	78
Spruce	0.36	0.86	38
Tahoe Blue	0.30	0.87	31
Terracotta	0.38	0.87	41
Tundra	0.46	0.86	52
Weathered Copper	0.34	0.87	36
Zinc Gray	0.36	0.87	39

	Initial Reflectivity*	Initial Emissivity*	Solar Reflectance Index*
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PREMIUM II METALLIC & PEARLESCENT EXTERIOR COLORS

Antique Patina	0.39	0.87	43
Asti	0.41	0.80	42
Autumnwood	0.30	0.88	31
Breakwater	0.32	0.82	31
Champagne	0.40	0.85	43
Copper Metallic	0.46	0.83	51
Dark Gray Metallic	0.35	0.80	34
Earth Gold	0.59	0.88	70
Metallic Beige	0.58	0.87	68
Metallic Fusion	0.23	0.89	22
Natural Suede	0.52	0.84	59
Pearl White	0.47	0.80	51
Prewathered Galvalume®	0.44	0.84	48
Rosalind	0.48	0.86	54
Sandstone Metallic	0.48	0.88	55
Sandstorm Metallic	0.39	0.89	43
Sea Foam	0.46	0.82	50
Silversmith	0.47	0.80	51
Silver Metallic	0.52	0.81	58
Weathered Zinc	0.38	0.87	41

PREMIUM III DESIGN WEATHERED METAL

Copper-Ten™ Raw	0.45	0.88	51
Copper-Ten™ Robust	0.44	0.88	50
Corp-Ten AZP® Raw	0.32	0.89	34
Corp-Ten AZP® Robust	0.32	0.85	32
Galv-Ten™ Raw	0.49	0.84	55
Galv-Ten™ Robust	0.52	0.86	60

	Initial Reflectivity*	Initial Emissivity*	Solar Reflectance Index*
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PREMIUM SP EXTERIOR COLORS

Hawaiian Blue	0.29	0.86	29
Crimson Red	0.32	0.87	33
Fern Green	0.29	0.86	29
Saddle Tan	0.47	0.87	53
Desert Sand	0.42	0.87	47
Burnished Slate	0.34	0.87	36
Koko Brown	0.35	0.86	37
Charcoal Gray	0.38	0.87	41
Rustic Red	0.37	0.86	39
Solar White	0.71	0.86	86

TUFF COTE® EXTERIOR COLORS

Antique Bronze	0.25	0.87	24
Light Gray	0.34	0.87	36
Light Stone	0.50	0.84	56
Medium Beige	0.37	0.88	40
Surrey Beige	0.32	0.88	34
Textured White	0.64	0.86	77
Warm Limestone	0.45	0.87	51

POLYESTER EXTERIOR COLORS

Igloo White	0.64	0.88	65
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AURORA™ COLORS

Copper Fairway	0.32	0.88	34
Electric Sky	0.36	0.88	39
Fading Rose	0.35	0.88	38
Lavender Essence	0.25	0.89	25
Sea Mint	0.42	0.86	46

LEED-NC v.4 (SS Heat and Reduction): Minimum initial SRI of 82 low slope & 39 steep slope.

LEED-NC v.3 (SS 7.2): Minimum SRI of 78 low slope & 29 steep slope.
Contact Metl-Span for information regarding 3-year solar reflective exposure for all exterior colors.

* Colors tested over HDG

Panel Core & Steel Faces

VOC (Volatile Organic Compound)

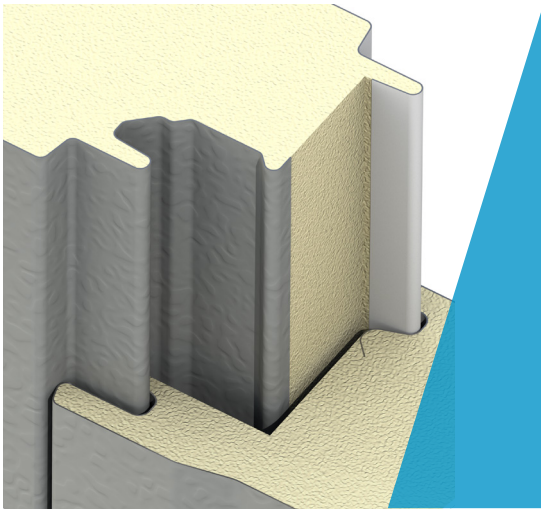
Metl-Span insulated metal wall panels, CFR insulated metal roof panels and ThermalSafe mineral wool panels contain no VOCs and do not contribute to smog. Metl-Span butyl sealing tape contains no VOCs. Tube sealant is available that is VOC compliant and HAPs (hazardous air pollutant) free.

ODP (Ozone Depleting Potential)

HFC-134a and Metl-Span's mineral wool core have zero ODP and no EPA limits for their use today and into the future

GWP (Global Warming Potential)

HFC-134a has a small aggregate radiative forcing impact and no EPA limits on its use today and into the future. Metl-Span's mineral wool core does not add to global warming potential.



Recycled Content of Steel Faces

TOTAL RECYCLED CONTENT

34.2%*

POST-CONSUMER RECYCLED CONTENT

19.8%*

PRE-CONSUMER RECYCLED CONTENT

14.4%*

*Subject to change

Insulation for Metl-Span® Insulated Metal Panels

The Metl-Span insulated metal panel core will have a K-factor of 0.14 at 75° mean core temperature. The panel core will have a K-factor of 0.126 at 40° mean core temperature. The insulating value of Metl-Span 7.2 Insul-Rib™ insulated metal panel is published on the Metl-Span website. The R-value of the polyurethane core used in Metl-Span insulated metal panels provides the highest insulating value per inch thickness of any building material available today.

Cool Roof Rating Council (CRRC)

Metl-Span color listing with CRRC

As rated by CRRC	Initial Reflectivity	Initial Emissivity
Polar White - Standard I*	0.70	0.86
Unpainted Galvalume®	0.69	0.19
*CRRC listing is by color family		

The CRRC is incorporated as a non-profit educational organization for the following purposes:

- To implement and communicate fair, accurate, and credible radiative energy performance rating systems for roof surfaces.
- To support research into energy related radiative properties of roofing surfaces, including durability of those properties.
- To provide education and objective support to parties interested in understanding and comparing various roofing options.



METL-SPAN ENVIRONMENTALLY CONNECTED



Metl-Span: Performance Redefined

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