METALALLIANCE

A Value Added Supplier of Metals







Metal Roofing

THE ENERGY EFFICIENT and Sustainable Building Choice

844.638.2548 ▪ orders@metalalliance.com ▪ metalalliance.com

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Durable. Energy Efficient. Eco-Friendly.

MAKING THE CASE FOR METAL

With its inherent physical properties and unlimited design options, metal roofing stands out among modern roofing solutions. Battle-tested by time and Mother Nature, its long-lasting durability, energy efficiency and minimal environmental impact combine to make the selection of a metal roof today a smart choice that will give back for decades.

> "Combining practicality and environmental stewardship, metal roofing provides a compelling choice for today's roofing solutions."

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METAL ROOFING IS Durable

> "Compared to nearly all other products in a home, metal roofs represent the gold standard for longevity."

While some homes need re-roofing many times, a metal roof can last for more than 50 years. When properly installed and maintained, a high-quality metal roof can easily last a lifetime. The most significant contributor to a metal roof's long life is its durability. Materials like steel, copper and aluminum will not warp, crack, or rot while withstanding extreme weather conditions including high temperatures, high winds, hail, marine environments, and even wildfires. Protective finishes like aluminum/zinc alloy (Galvalume®) prolong the life of steel against rust. Kynar 500®-based protective paint coatings such as Sherwin Williams Fluropon® are specially engineered to further prolong the life of your metal roof against chipping, peeling, flaking and fading. The superior durability of metal roofing also helps to reduce the use of raw materials long term, saving energy and minimizing negative impacts to the environment, earning it a place in most green building programs such as LEED Homes or the National Green Building Standard.



Metal roofing was selected for this new residential community for its long-lasting durability and energy efficient performance. Projects such as these help reduce the use of raw materials long-term, earning metal roofing a place in most green building programs such as LEED Homes or the National Green Building Standard.

METAL ROOFING IS Energy-Efficient

> One of the most effective ways to reduce a building's energy-use is by upgrading to a metal roof.

With the rising cost of utility bills, homeowners continue to look for ways to make their homes more energy-efficient. Upgrading to a metal roof can significantly reduce a building's long-term energy use by reducing the energy required to keep it cool during warmer months and warmer when winter arrives.

Due to its low thermal conductivity, a metal roof reflects more of the sun's energy (heat) compared with other roofing materials. Heat is redirected away from the building instead of being absorbed and transferred into the building below. Reduced heat transfer results in cooler interiors which is great in the summer months to keep cooling costs lower. In colder climates, a metal roof is better than other roof types at regulating interior temperatures throughout the day. Less fluctuation means the less energy your heating system will require to keep you comfortable.

COOL ROOF COATINGS FOR ADVANCED ENERGY EFFICIENCY

Because metal is naturally reflective, even an unpainted metal roof will be more effective at redirecting solar energy than other materials such as asphalt shingles that trap heat. The most energy-efficient metal roofs are finished with protective "cool roof" coatings. Designed to protect and preserve the underlying metal, these finishes are specially formulated to amplify metals inherent reflective properties, reducing the cost to cool or heat your home without sacrificing durability or performance.

WHAT MAKES A METAL ROOF "COOL"?

The "coolness" of a material is measured using two physical properties, solar reflectance (SR) and thermal emittance (TE). According to the Cool Roof Rating Council, a cool metal roof strongly reflects solar energy (SR) back into the atmosphere and cools itself by efficiently emitting heat (TE) that is absorbed. Cool metal roof coatings are engineered with solar reflective pigments that reflect infrared radiation while still absorbing the same amount of visible light.

Once installed and exposed to the sun's rays, a percentage of solar energy (heat) will be reflected away from the metal roof, and some will be absorbed and then released back into the environment. The more reflective the coating, it's SR, the better the roof's ability to redirect solar heat away from the building. The more effectively the roof surface releases (emits) absorbed heat and returns to its normal temperature, it's TE, the more efficient it will be at keeping interior temperatures consistent. Using its SR and TE values, a metal roof's Solar Reflectance Index (SRI) can be expressed as a relative temperature. The higher the SRI, the cooler the roof surface, reducing energy use and lowering costs.

LEADING THE WAY

Metal Alliance is proud to partner with **Sherwin Williams Coil Coatings**, a global leader in the development and manufacture of best-in-class Cool Metal Roof Coatings. With advanced products like **Fluropon® 70% PVDF** and **WeatherXL™ SMP** Sherwin-Williams sets the bar for protective metal coatings that help to reduce energy consumption.

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SHERWIN-WILLIAMS
Coil Coatings

HOW DOES COOL ROOF TECHNOLOGY WORK?

A cool roof is one that strongly reflects solar energy from its surface **(Solar Reflectance or SR)** and cools itself by efficiently emitting any heat that was absorbed back into the atmosphere **(Thermal Emittance or TE)**.

SR SOLAR REFLECTANCE

The percentage of the sun's energy that bounces off the roof surface (reflected) instead of being absorbed. Some of that energy will be reflected away from the surface and some absorbed by the surface as heat.

TE THERMAL EMITTANCE

A measure of how efficiently the roof surface releases (emits) absorbed solar energy (heat) and returns to its normal temperature.

SRI SOLAR REFLECTANCE INDEX

The standardized method for measuring a material's ability to reflect and emit solar energy relative to other materials. Using Solar Reflectance (SR) and Thermal Emittance (TE) values, how much a roof's temperature will rise when in contact with solar energy is calculated for various standard environmental conditions. The material's Solar Reflectance Index (SRI) is then expressed as a relative temperature between 0-100 for easy comparison with other materials. The higher the SRI, the cooler the roof surface reducing energy use and lowering costs.



Cool metal roofs can reduce cooling loads up to 1/3 shrinking energy costs an average of 20%

COOL ROOF COATINGS

The higher a metal roof's SRI, the cooler the roof surface, reducing energy use and lowering costs. By reducing energy consumption, a cool metal roof can also play a crucial role in achieving the U.S. Green Building Council's LEED certification†.

	Coating	SR	EMI	SRI	3-Year SRI	LEED Eligible >2:12†	LEED Eligible ≤2:12†
	Galvalume® *Acrylic-Coated*	0.69	0.19	62	50	✓	
Fluropon®	Aged Copper	0.44	0.86	49	52	✓	
	Almond	0.64	0.88	77	80	✓	✓
	Bayside Black	0.05	0.89	-1	-1		
	Buckskin	0.41	0.88	46	45	✓	
	Burgundy	0.14	0.87	10	11		
	Celestial Bronze	0.36	0.83	37	36	✓	
	Champagne	0.34	0.83	34	35	✓	
	Charcoal Gray	0.30	0.86	30	29		
	Colonial Red	0.32	0.87	33	35	✓	
	Copper Metallic	0.41	0.86	45	45	✓	
	Cosmic Dust	0.30	0.85	30	31		
	Dark Bronze	0.27	0.86	26	26		
	Dove Gray	0.45	0.85	50	43	✓	
	Eclipse	0.33	0.85	34	33	✓	
	Evergreen	0.29	0.86	29	29		
	Hartford Green	0.31	0.88	32	34	✓	
	Hemlock Green	0.29	0.87	29	29		
	Mansard Brown	0.26	0.86	25	25		
	Matte Black SR	0.26	0.86	25	N/A♦		
	Medium Bronze	0.32	0.84	32	34	✓	
	Millennium Blue	0.08	0.87	2	2		
	Patina Green	0.40	0.87	44	46	✓	
	Pre-Weathered	0.25	0.82	22	20		
	Regal Blue	0.27	0.85	26	26		
	Regal Red	0.41	0.81	43	43	✓	
	Regal White	0.66	0.87	80	80	✓	✓
	Sandstone	0.50	0.87	57	57	✓	
	Sierra Tan	0.30	0.87	31	29		
	Silver Metallic	0.49	0.81	54	52	✓	
	Slate Blue	0.29	0.85	28	28		
	Slate Gray	0.36	0.87	39	41	✓	
	Solar White	0.67	0.86	81	84	✓	✓
	Terra Cotta	0.35	0.87	37	36	✓	
	Tropical Patina	0.30	0.87	31	31		
WeatherXL™	Berry	0.30	0.88	31	29		
	Black	0.31	0.86	31	N/A♦		
	Buckskin	0.33	0.87	35	32	✓	
	Charcoal	0.36	0.86	38	N/A♦		
	Cocoa Brown	0.34	0.88	36	36	✓	
	Colony Green	0.34	0.87	36	36	✓	
	Copper Metallic	0.49	0.86	55	N/A♦	✓	
	Crimson Red	0.33	0.87	35	33	✓	
	Evergreen	0.34	0.88	36	36	✓	
	Gallery Blue	0.26	0.87	25	25		
	Hawaiian Blue	0.32	0.86	33	31		
	Ivory	0.66	0.87	80	79	✓	✓
	Light Stone	0.56	0.87	66	64	✓	✓
	Old Town Gray	0.42	0.87	47	47	✓	
	Polar White	0.65	0.87	78	78	✓	✓
	Rustic Red	0.39	0.86	42	N/A♦	✓	
	Saddle Tan	0.47	0.87	53	N/A♦	✓	

Final color selection should be made from metal chip.

†Eligible for up to 2 LEED points for Heat Island Reduction based on SRI values; Values calculated in accordance with standard cool roof testing methods including ASTM C1549, ASTM C1371, and ASTM E1980 on Galvalume® substrate and subject to change as new data becomes available. SRI calculated based on medium wind speed.

♦3-Year SRI values will be available when weathering is complete.

LEED Up to 2 Credits Available HEAT ISLAND REDUCTION†

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METAL ROOFING IS Eco-Friendly

> **Metal is considered the most environmentally friendly and sustainable roofing material available.**

From manufacture and installation to maintenance, incorporating a metal roof into your building design will minimize its impact on the environment at every turn. That's why choosing metal for your roofing project is a logical step toward a more sustainable future. Take a look at all the reasons metal is the go-to choice for eco-friendly roofing.

- **RECYCLABILITY.** Metal roofing is made with up to 95% of the most recyclable materials on earth. And at the end of its lifespan, a metal roof is 100% recyclable with no loss of material performance, reducing landfill waste and the energy demand required for new materials.

- **EFFICIENT AND CLEAN PRODUCTION.** From the recyclability of metal to the highly controlled processes for protective coating manufacturing and metal panel fabrication, production of metal roofing generates less waste and greenhouse emissions compared to other materials.

- **LIGHTWEIGHT.** Since metal is the lightest standard roofing material available, a metal roof puts less stress on load bearing roof support structures reducing maintenance and repairs as well as environmental impacts. Using metal also conserves natural resources like lumber and requires less energy for transport, reducing emissions.

- **LONGEVITY.** The resilience and durability of a metal roof means it will last between 40 - 70 years. That's far fewer roof replacements (compared w/ other roof types), conserving manufacturing energy and resources and reducing harmful emissions into the environment.

- **REDUCED ENERGY USE.** Higher solar reflectance and thermal emissivity of a metal roof will reduce cooling loads, decreasing the demand for power, especially during peak usage.

- **SOLAR PANELS.** Solar panels create electricity without emitting greenhouse gases. Metal is the ideal roofing material for attaching solar panels because they easily support the weight of the system over other roofing products. Since metal roofs are also known for their longevity, it's unlikely that solar panels will need to be removed due to roof replacement and discarded in a landfill before the end of their expected lifespan.

DID YOU KNOW?

- Asphalt shingles roofs take hundreds of gallons of crude oil to install and that approximately 20 billion pounds of asphalt shingles are dumped into landfills yearly.

- Industry experts estimate that asphalt shingles take between 300 to 400 years to decompose fully.

- Asphalt shingles break down slowly, releasing harmful and potentially carcinogenic chemicals into groundwater, contaminating soil and other water sources which can harm wildlife, aquatic ecosystems, and humans.

- Decomposing asphalt shingles can cause formation of methane, a potent greenhouse gas that contributes to climate change.

- The production and transportation of new asphalt roofing materials require substantial energy input, leading to increased greenhouse gas emissions.

“Building today for a better tomorrow.”

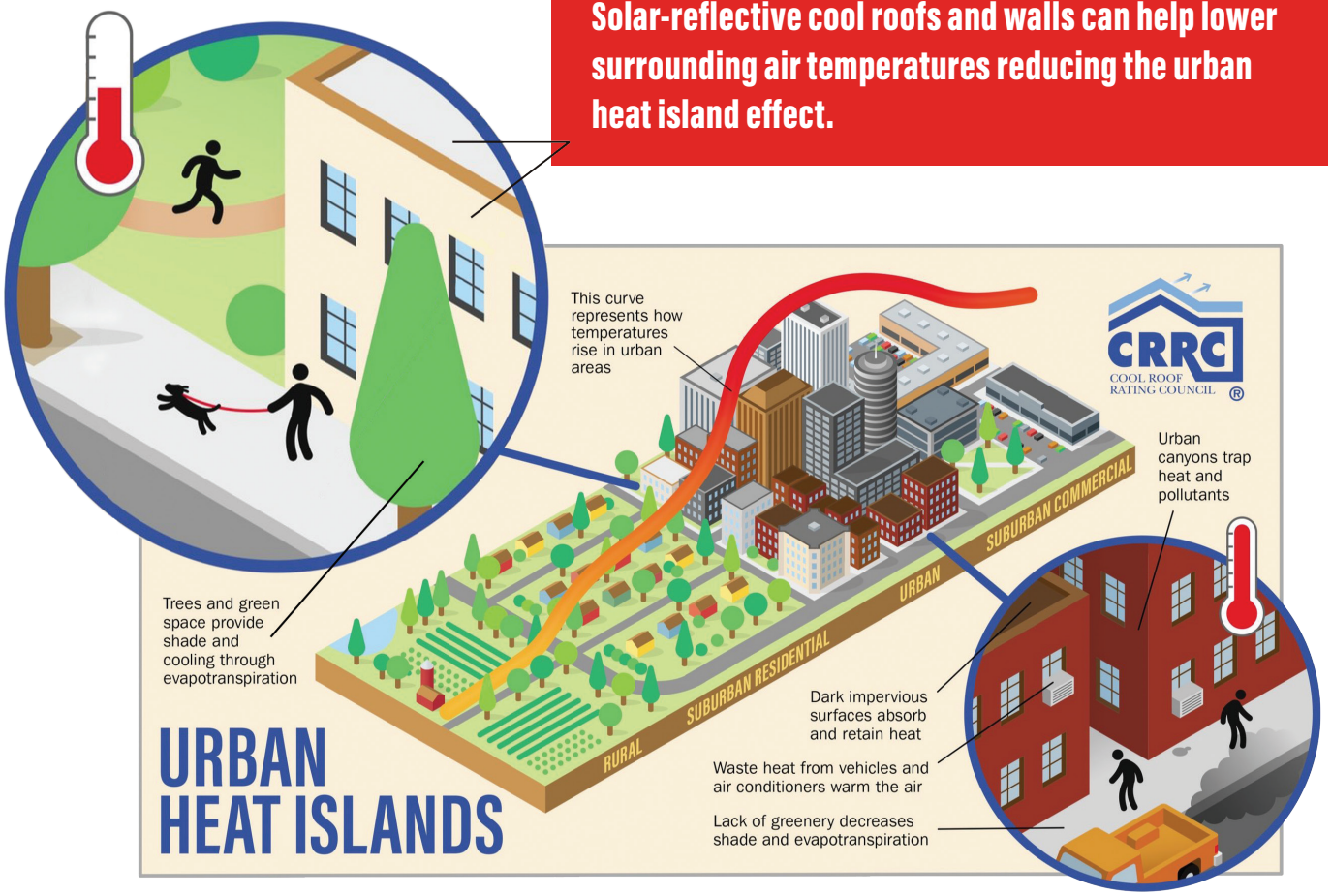
BEATING THE URBAN HEAT ISLAND AFFECT WITH COOL METAL ROOFING

The urban heat island effect occurs when urban areas are hotter than surrounding areas due to a high concentration of impervious surfaces such as buildings, roads and other infrastructure, combined with a lack of trees and green space. Tall buildings that block or slow air movement, known as urban canyons, contribute to the formation of heat islands, along with waste heat released by vehicles and air conditioning. Heat islands increase peak power demand as air conditioning systems must work harder to keep spaces cool which can lead to power interruptions, air pollution and greenhouse gas emissions, heat-related illness and mortality, and degraded water quality.

Choosing energy-efficient cool metal building products from Metal Alliance can play an important role in mitigating the heat island effect.

Compared with other building materials, a cool metal roof or building can help offset the heat island effect by more effectively reflecting and remitting heat. This reduces cooling loads, decreasing energy demand and easing the strain on the power grid, especially during peak usage. Cool metal building materials can also help lower surrounding air temperatures in urban areas which helps to improve air quality by reducing smog and the generation of carbon pollution. Incorporating a cool metal roof into your building plan can contribute to earning up to 2 LEED Sustainable Sites credits for heat island reduction.

Solar-reflective cool roofs and walls can help lower surrounding air temperatures reducing the urban heat island effect.



Urban heat islands occur when the temperature in urban environments is higher than surrounding areas. High surface temperatures lead to elevated air temperatures, especially at night, causing greater air conditioner use which increases energy costs and air pollution. Image Credit: Cool Roof Rating Council

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Choose an ENERGY EFFICIENT metal roof today for a sustainable tomorrow.

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