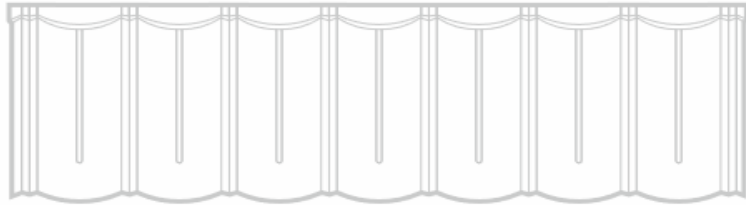


What is Stone Coated Steel Roof.



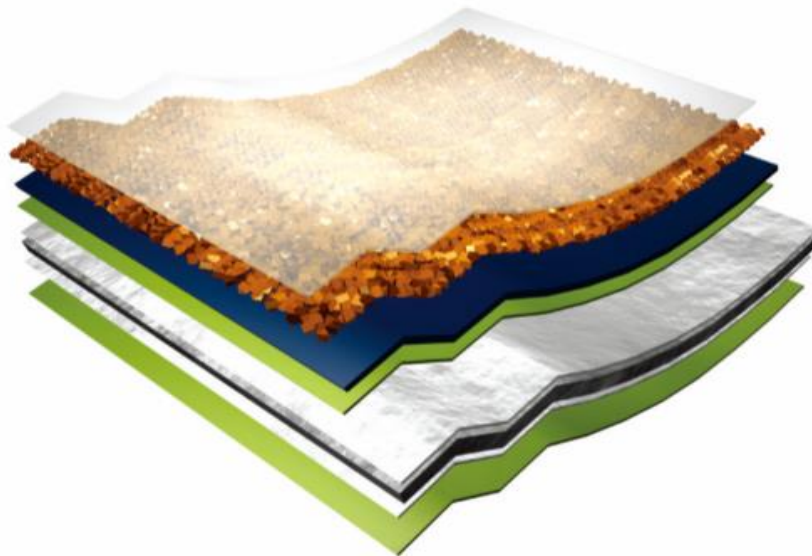
Stone Coated Steel Roof is a world famous, unbelievably light roofing system that can enhance the look of your roof with its elegant design and great color range. **Stone Coated Steel Roof** is designed and manufactured to withstand all kinds of severe weather such as extreme hot and cold weather, strong wind, and heavy rain. **Stone Coated Steel Roof** can protect your home against all the destructive forces of nature because the tiles are designed to overlap and interlock into a horizontal fix system. The fastenings of this horizontal fix system are done at right angles, thus, creating a roof structure of superior strength that is strong enough to resist hurricane force wind, heavy snowfall, and earthquakes. The granulated stone chips on the surface give additional weather protection to your roof. And despite the sun's harsh ultraviolet rays, fading and discoloration in the tiles are not possible. **Stone Coated Steel Roof** is a product that can enhance the style of any home or commercial building and give it a lasting beautiful look.



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Structure of Stone Coated Steel Roof.

What is Stone Coated Steel Roof.



- Clear acrylic over-glaze protective coating.
 - Roofing Granule coating
 - Adhesive basecoat
 - Protective surface coating
 - Aluminum/ Zinc coating
 - Commercial grade steel core
 - Aluminum/ Zinc coating
 - Protective surface coating
- *Galvalume®



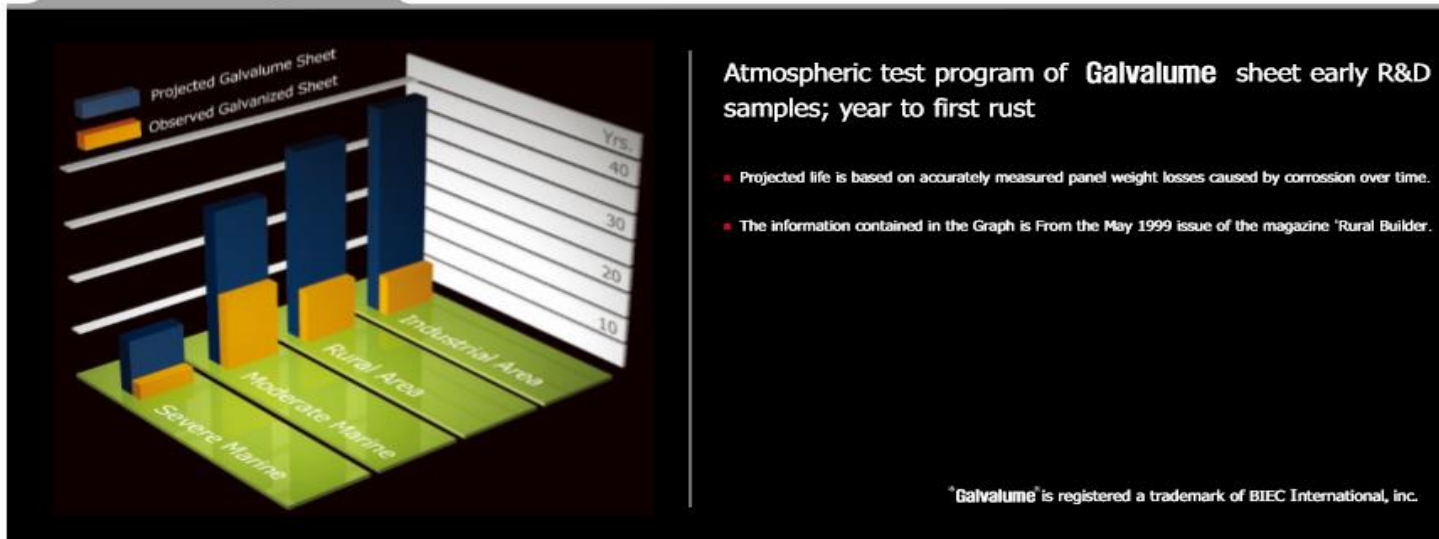
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What is GALVALUME

What is Stone Coated Steel Roof.

Galvalume steel is the result of an ideal alloy of Aluminum and Zinc. It consists of Aluminum (55% in weight ratio but 80% in surface volume ratio), Zinc (43.4% in weight), and Silicone (1.6% in weight ratio) so it has both Aluminum-unique corrosion-resistance and heat resistance and Zinc-unique "Galvanic Behavior".

Columned diagram :



Characteristics of Galvalume

What is Stone Coated Steel Roof.

Salt Spray Test

* Condition : Conforming to ASTM B-117-73

	Coating wt		Number of hours before visible red rust
Unilume	150g/m ²	40μ(Both)	5,500 Hr
Galvanized	275g/m ²	40μ(Both)	300 Hr

PRODUCTION AVAILABILITY

[Production Availability]

Thickness(mm)	0.35 ~ 2.3
Width (mm)	600 ~ 1,270
Sheet Length(mm)	600 ~ 5,000
Coil Weight(Max)	12 ton
Coil Inner Diameter (mm)	508

[Coating Weight]

Al-Zn alloy	Coating Thickness
Coating Weight	μ
100 g/m ²	26
150m ²	40
200m ²	52

[Surface Treatment]

- Chromated
- Anti Finger Printed
- Oiled
- Cleanlume
- Lubricant Unilume
- Transparent
- Prepainted Unilume



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DURABILITY

Humidity Test

* Cleveland condensing cabinet test

	Specimen		Result
	Coating wt	Thickness	
Unilume	150g/m ²	40μ(Both)	No red oxidation rust after 35,300 Hr run
Galvanized	275g/m ²	40μ(Both)	Red oxidation rust before 6,000 Hr run

	22 Cycle		75 Cycle		116 Cycle	
	Red rust	External appearance	Red rust	External appearance	Red rust	External appearance
Gavanized	1	Red rust at cut section	100	-	100	-
Al-coated	0	Traces of red rust at cut section	10	Red rust at cut section	20	Rust at cut section & Bends
Unilume	0	Bright surface	0	Dark surface	0	Red rust at cut section

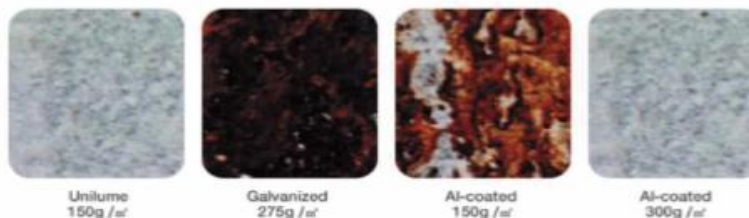


Characteristics of Galvalume

What is Stone Coated Steel Roof.

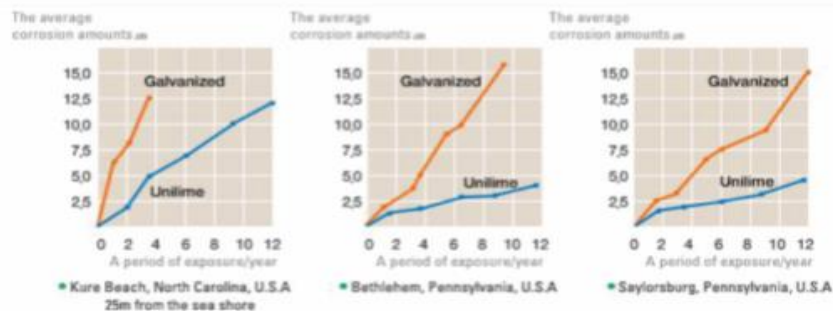
Salt Spray Test

* 3,200Hr test



Outdoors Exposure Test (For 13 Years)

Specimen Unilume (Coating 150g/m²)
Galvanized (Coating 275g/m²)



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WORKABILITY

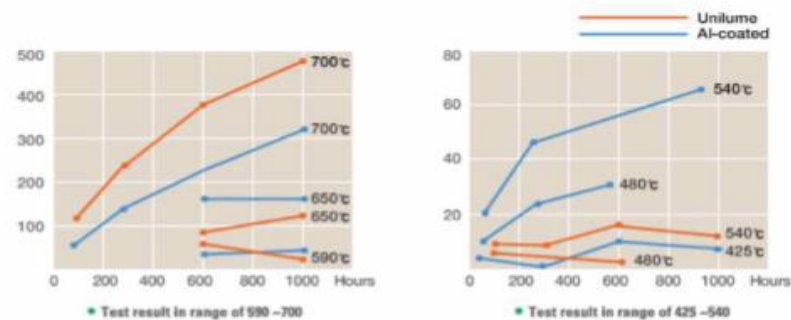
Unilume has the same characteristics with galvanized steel sheet in workability & formability, and especially, micro crack at forming section is much less than galvanized steel sheet. Therefore, Unilume has excellent durability at forming section.

HEAT-RESISTANCE

Heat-resistance of Unilume is far superior to that of galvanized, and almost equal to characteristics of Al-coated steel.

- Galvanized : Recommendable temperature ; 230°C & under, Discoloration at 250°C
- Unilume : No discoloration even for durable use at 315°C

Comparison of corrosion resistance at high



Characteristics of Galvalume

What is Stone Coated Steel Roof.

Analysis

- Temperature range 480 °C ~ 540 °C Unilume °C Al-coated
- Temperature range 590 °C ~ 650 °C Unilume °C Al-coated
- Temperature range 700 °C & Over Unilume °C Al-coated

WELDABILITY

Spot Welding condition

Thickness (t)	Pressure (kg)	Cooling time (Cycle=1/60 sec.)				A diameter of the electrode tip(m)
			Current (KA)	Live with electricity time	Maintenance time	
0.4	100	4	5.0	10	30	4.5
0.5	150	4	5.4	10	30	5.0
0.6	200	4	5.7	10	30	5.0
0.8	200	4	7.0	10	30	5.0
1.0	250	6	8.0	14	40	6.35
1.1	250	6	8.2	14	40	6.35
1.5	300	6	9.0	14	40	6.35

※ Introductory remarks

- 1The first live with electricity current ;4KA,
- Live with electricity time ;8 CYCLE,
- SQUEEZE TIME ;40 CYCLE(time :CYCLE)



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Characteristics of Galvalume

What is Stone Coated Steel Roof.

Thickness	Electrode portion	Electrode thickness	Pressure:kg	Current :A	Welding time 1/60 sec		Welding speed mm/min
					Heating	Cooling	
0.4	12.7R	9.53	300	14,500	2	2	1,500
0.6	12.7R	9.53	400	16,000	3	2	1,500
0.8	6.35R	12.7	450	21,500	4	2	1,500
1.2	6.35R	12.7	500	22,000	4	2	1,500

※ Intermittent current is recommended rather than continuous current.

Material	Heat-transmission : h/watt/m ²
Al-coated : 300g/m ²	40
Unilume : 150g/m ²	65
Galvanized : 275g/m ²	120
Asbestos cement	150

PAINTABILITY

Unilume can be painted without pre-treatment or weathering when used for signboard or general purpose, due to its superior adhesive strength between zinc layer and paint, unlike galvanized steel which requires weathering or pre-treatment.

Advantage of Stone Coated Steel Roof

What is Stone Coated Steel Roof.

■ LIGHTWEIGHT

Roser Roofing System is wide, which means that every tile covers a large area. It's lightweight (only about 1/6 weight of traditional clay or cement tile), therefore, you can save considerable amounts of money on extra structural support, transportation, workmanship, and installation costs.

■ RE-ROOFING

Roser Roofing System can bring a new look to your home if you are unsatisfied with your existing roof. It is designed to be easily installed over any existing roof in a matter of a few days.



■ MANUFACTURED TO INTERNATIONAL STANDARDS

ROSER CO.,LTD. is registered to ISO 9001 the quality management system standard, to meet rapidly changing demand of the 21st century, now accepted in more than 75 countries around the world.

Advantage of Stone Coated Steel Roof

What is Stone Coated Steel Roof.

■ EASY HANDLING

Roser Roofing System can be cut, bent, and shaped to meet the most demanding roof design from as low as a 12-degree pitch to a 90-degree angle pitch.

■ EXCELLENT COLOR CHOICE

Roser Roofing System has a great selection of colors to choose from which will suit each and every customer's preference. The colors blend in perfect harmony to give a natural and dazzling look to your roof.

■ OUTSTANDING DURABILITY

Roser Roofing System is designed and manufactured to withstand all kinds of most severe weather such as extremely hot and cold weather, strong wind, and heavy rain. SPANY is particularly strong in resisting corrosion with its specially made Nine layers of protection : Six on the surface and three on the underside. The core strength is **Galvalume** steel (Aluminum -Zinc Alloy). **Galvalume** steel has great longterm corrosion resistance. On both sides of this core strength, a rust resistant primer and a seal coat are coated respectively. Then an acrylic base-coat is added to provide extra durability. The stone chips are then embedded to provide enhanced strength and beauty, followed by clean acrylic overglaze.

Strong Against Nature

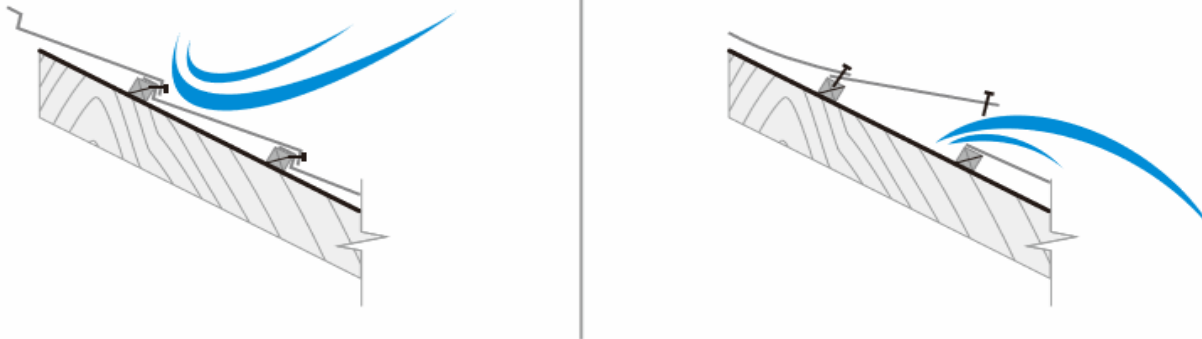
What is Stone Coated Steel Roof.

■ Hail resistant:

Roser roofs have been awarded a UL- 2218 Hail Impact Resistant Class 4 Classification. In some states discounts of as much as 35% on annual homeowner Insurance premiums are offered to products bearing the Class 4 certification.

■ Wind resistance:

Roofing products are designed to resistance winds up to 120mph. Increased wind resistance can be obtained by following our high wind installation procedures.



Strong Against Nature

What is Stone Coated Steel Roof.

■ Fire resistance:

Roser Roofing products are considered to be a "Class A" roof covering in accordance with Section 1505.2 (IBC and IRC)



■ SNOW resistance:

