

GALVALUME®

Proven Performance

CHANCES ARE, YOU'RE a key decision-maker who's been given the task of choosing a new or replacement roof for your building. After conducting your research, you may be tempted to purchase a flat, non-metal roof, but you are concerned about its high life-cycle costs and frequent maintenance requirements. Consequently, you are searching for a roofing system that will be more economical over the long term – one that provides weather-tight protection and decades of life with minimal maintenance. That's what you'll get with a GALVALUME® standing seam roof (SSR).

Experienced roof designers have recognized Galvalume steel as the ideal material for SSR systems since it was introduced in North America in 1972. With its 55% aluminum-zinc coating, Galvalume steel resists corrosion in many of the country's harshest environments. When properly installed, the innovative, low-slope SSR roof system's interlocking Galvalume steel panels shed rain and eliminate ponding water. What's more, Galvalume steel roof panels exceed solar reflectance requirements of the U.S. Environmental Protection Agency's ENERGY STAR® Cool Roof Program. Roof products that carry the ENERGY STAR® label can keep buildings cooler in the summer, reducing energy usage, utility bills and air pollution. That's what makes it perfect for all kinds of buildings and all types of climates – from

marine to industrial to rural. Owners can count on Galvalume SSRs to outperform and outlast other conventional nonmetallic roofing systems with practically no maintenance, and that means better long-term value.

TO PROVE IT, experienced roof designers and metallurgists have periodically inspected Galvalume steel roofs over the past 25 years to reaffirm what they already knew from years of laboratory testing: Galvalume sheet provides excellent long-term corrosion resistance in a variety of environments. It was confirmed during the most recent roof inspections in the Eastern half of North America that Galvalume SSRs are sound after 25 years of exposure. What's more, they can be expected to last another 10 to 15 years without any major repairs. Now that's value.

Manufacturers of the Product

The product discussed in this brochure is a 55% Al-Zn alloy-coated sheet steel manufactured and sold under the GALVALUME trademark by:

Bethlehem Steel Corp.
Dofasco Inc.
National Steel Corp.
Steelscape, Inc.
United States Steel Corp.
Wheeling-Nisshin, Inc.

It is also manufactured and sold by Steelscape, Inc. under the registered trademark ZINCALUME® steel; by Industrias Monterrey S.A. under its trademark ZINTRO-ALUM™; and by Galvak, S.A. de C.V. under its trademark GALVAL™.

25 years and beyond

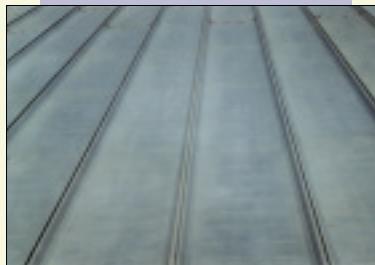
The photos in this brochure compare Galvalume steel roofs as they appeared in 20-year inspections in 1994 and 25-years inspections in 1999. It's apparent from these photos that the Galvalume steel roofs are still in good condition after 25 years, which shows how well this type of roof holds up after prolonged use in all kinds of environments.

About the Inspection

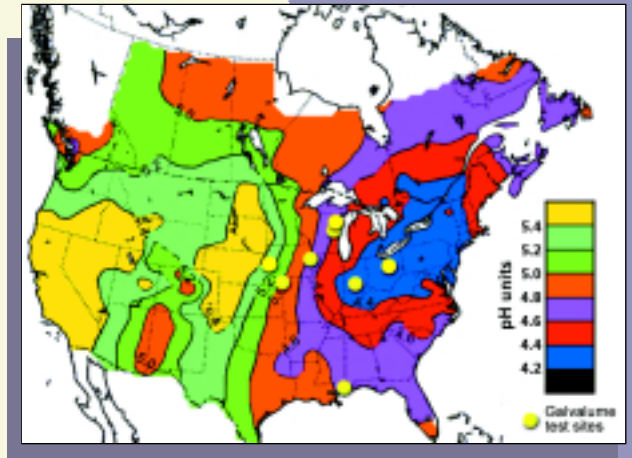
THE 1999 INSPECTION TEAM evaluated 33 Galvalume steel roofs, many of which were over 20 years old when they were inspected in 1994. Inspectors looked at buildings in 14 cities in the industrial Northeast, Midwest, Gulf Coast and Southeastern regions of North America. Roofs ranged in age from less than one year old to more than 25 years old.

- 13 roofs were up to 17 years old
- 8 roofs were between 20 and 25 years old
- 12 roofs were over 25 years old
- Roof slopes ranged from near-flat (1/4:12 or 1 degree) to slightly sloped (1:12 or 5 degrees)

Galvalume steel roofs on buildings in the northern and Midwestern regions were subjected to acid rain, harsh winters and corrosive elements from nearby industry. Galvalume steel roofs on buildings in the Southeastern and Gulf Coast regions of North America had to contend with heavy morning dew and/or salt-laden air.



5-Year (1990-1994) Average pH Distribution in North America



THE ABOVE MAP shows the location of the buildings that were inspected in 1999. The map also shows the acidity levels of rain throughout North America. The lower the pH, the more acidic the rain. Acid rain is very corrosive, but Galvalume sheet steel performs exceedingly well in this type of environment. (Map provided courtesy of Meteorological Service of Canada, Environment Canada).

The Bottom Line

THE 1999 INSPECTION confirmed that low-sloped Galvalume steel roofs continue to perform well in a variety of environments, even after 25 years. More importantly, 25-year-old Galvalume SSRs are predicted to provide at least another 10 to 15 years of useful life without any major maintenance. That's good news for people who invest in Galvalume SSRs. They know they're getting a long-lasting, highly economical roof that won't need major maintenance for decades to come.

25 Years

In a wet and humid area on the Gulf Coast

Gulfport, MS

1994 photo



1999 photo



Galvalume SSR— The Proven Performer

The Galvalume Standing Seam Roof (SSR) is a weather-tight, low-maintenance roof system with a proven track record of more than 25 years of performance. The 1999 survey confirms earlier building inspections and long term research and development tests, which show that Galvalume SSRs can withstand decades of harsh sun, heavy rains and snow, corrosive industrial emissions and severe temperature changes without any major maintenance.

The 1994 inspection photo above shows that the Galvalume SSR was in excellent condition after 20 years compared to the galvanized ancillaries, which were heavily rusted. The 1999 inspection photo above shows that the same Galvalume SSR continues to perform well after 25 year of service in the humid and wet marine environment on the Gulf Coast. It is projected that this 1/2:12-pitch roof should easily last another 10 years without major maintenance.

→ *and beyond*

Industrial area in the Midwest

Appleton, WI

The 1999 inspection of this 1/4:12-pitch Galvalume SSR confirmed that there has been little change since the 1994 inspection. The Al-Zn coating, which is more than 25 years old, was intact and protecting the steel base. In contrast, many of the galvanized ancillaries were heavily rusted. This roof, which is located near paper mills, is predicted to last another 10 to 15 years without major maintenance.

1994 photo



1999 photo



With over 8 billion square feet installed, Galvalume SSRs continue to gain in popularity among architects and building owners. Their success is due to innovative SSR designs and Galvalume sheet steel's outstanding corrosion resistance. SSRs are providing a long-life alternative to short-lived, maintenance-plagued nonmetallic roofs.

Features of Galvalume SSR

Weather-tight

Galvalume SSRs consist of interlocking coated steel panels fastened together at seams and held in place with concealed clips attached to supporting purlins. The weather-tight seams are raised above the roof's drainage plane to provide an extra barrier to water. A slight slope of 1/4:12 (1 degree) eliminates ponding water.

A variety of weather-tight seams are available, including single-lock, double-lock, single-crimped and capped. Some seams snap together; others are mechanically sealed during installation. However, they all eliminate the need for most through-the-roof fasteners and provide a weather-tight seal for the life of the roof.

Suitable for New or Retrofit Roofs

Galvalume SSRs can be installed on new structures or over existing roofs year-round, regardless of weather conditions. The 55% aluminum-45% zinc coating gives the SSR panels excellent long-term corrosion protection – not only in the flat areas, but also in key areas such as tension bends and drip edges, and at structural embossments.

25 Years

Acid rain, light industrial area Indianapolis, IN

1994 photo



1999 photo



The Galvalume SSR on this building is more than 25 years old, and is located in a light industrial area near downtown Indianapolis. The surface of the panels was dulled due to the accumulation of dirt and natural oxidation. Galvanized ancillaries were heavily rusted, but the Galvalume panels on this 1/4:12-pitch roof were in good condition. They are expected to last at least another 10 years in this acid rain, light industrial environment without major maintenance.

→ and beyond

1994 photo



In the acid rain belt

Medina, OH

1999 photo



Despite the fact that this Galvalume SSR is located in an area with severe acid rain, this 1/4:12-pitch roof has continued to perform well after more than 25 years in service. The 1994 photo was taken in the early morning when the roof was wet with dew. The 1999 photo was taken in the afternoon after the moisture on the roof had evaporated. It is predicted that this Galvalume SSR will last another 10 years without major maintenance.

Accommodates Thermal Expansion and Contraction

A unique feature of the Galvalume SSR is its ability to accommodate thermal movement. SSRs feature a concealed clip that is crimped into the seam. This clip attaches the metal panels to supporting purlins to allow easy movement during temperature changes.

Concealed clips are crimped into the roof's seams without penetrating the steel membrane. These clips attach to supporting purlins to create a roof that "floats," so the roof system can easily expand and contract even with the most severe temperature fluctuations.

ENERGY STAR® Energy-Efficient

Galvalume steel roof panels exceed the solar reflectance requirements of the U.S. Environmental Protection Agency's ENERGY STAR® Cool Roof Program. Roof products with the ENERGY STAR® label can keep buildings cooler, reducing energy use, utility bills and air pollution.

1994 photo



Industrial, acid rain environment

Davenport, IA

1999 photo



The 1994 inspection photo above shows that the Galvalume SSR was in excellent condition after 20 years in service. The 1999 inspection photo shows that the same roof continues to perform well after 25 years of service. It is projected that this 1/2:12-pitch, Galvalume SSR will last at least another 10 years without maintenance, even in this industrial, acid rain environment.



Galvalume® Sheet Producers of North America

Galvalume® Sheet Producers of North America

1111 Main Street, Suite 545
Vancouver, WA 98660
Phone: (360) 750-5791 Fax: (360) 750-5936
Web site: www.steelroofing.com

NamZAC Association Members and Producers of GALVALUME Sheet Steel:

Bethlehem Steel Corp.
Bethlehem, PA
Phone: (800) 521-4789

Galvak, S.A. de C.V.
Monterrey, Mexico
Phone: (52-81) 8748-0485

United States Steel Corp.
Pittsburgh, PA
Phone: (888) 243-6851

Steelscape, Inc.
Rancho Cucamonga, CA
Phone: (800) 987-4727

Industrias Monterrey S.A.
Monterrey, Mexico
Phone: (52-81) 8329-8536

Wheeling-Nisshin, Inc.
Follansbee, WV
Phone: (304) 527-2800

Dofasco Inc.
Hamilton, ON Canada
Phone: (800) 363-2726

National Steel Corp.
Mishawaka, IN
Phone: (219) 273-7000

- GALVALUME® is an internationally recognized trademark of BIEC International Inc., and some of its licensed producers, and a trademark of Dofasco Inc. in Canada.
- ZINCALUME® is a registered trademark of BHP Steel (JLA) Pty Limited.
- ZINTRO-ALUM™ is a trademark of Industrias Monterrey S.A.
- GALVAL™ is a trademark of Galvak, S.A. de C.V.
- ENERGY STAR® is a U.S. registered trademark.