

# Galvanized Steel vs. Galvalume®

## Technical Comparison for Roofing & Siding Applications

---

### Galvanized Steel

#### Zinc-Coated Carbon Steel for High-Ammonia & Livestock Environments

Galvanized steel is manufactured by hot-dip coating carbon steel in molten zinc. The metallurgical bond between zinc and steel forms a **sacrificial corrosion protection layer** that delays oxidation of the base substrate.

---

### Technical Advantages

- **No Surface Preparation Required**  
Supplied ready for installation; no field coating or pretreatment needed.
  - **High Reflectivity**  
Exhibits a bright, crystalline, highly reflective finish (spangle), preferred in applications where high visibility or traditional steel aesthetics are desired.
  - **Superior Livestock Resistance**  
Zinc coatings exhibit **higher chemical tolerance** to ammonia, urea, and moisture-rich waste typical in cattle, swine, and equine operations.
  - **Strength & Structural Stability**  
Cold-formed after galvanizing for improved rigidity and load-bearing performance in roofing and siding profiles.
- 

### Coating Classifications

- **G60:** 0.6 oz zinc/ft<sup>2</sup> (total both sides)
- **G100:** 1.0 oz zinc/ft<sup>2</sup> (total both sides) — **66% higher zinc mass** than G60  
→ Significantly increases corrosion resistance and service life.

**Recommended:** G100 for any livestock or high-moisture containment facility.

---

## Primary Applications

- Animal confinement (cattle, swine, horse)
  - Agricultural structures (barns, feed/storage buildings)
  - Industrial and structural projects with moderate corrosion exposure
  - Architectural installations requiring a reflective or intentionally weathered appearance
- 

## Galvalume® Steel

### Aluminum–Zinc Alloy Coated Steel for Superior Atmospheric Corrosion Resistance

Galvalume® is coated using a bath containing **55% aluminum, 43.5% zinc, and 1.5% silicon**. The aluminum provides barrier protection while the zinc component offers sacrificial defense. Silicon improves coating adhesion during forming.

This alloy structure results in **exceptional long-term corrosion resistance**, particularly in exterior atmospheric conditions.

---

## Technical Advantages

- **Outstanding Corrosion Resistance**  
Performs 2–4 times better than galvanized steel in most outdoor and coastal environments due to aluminum’s barrier performance combined with zinc’s sacrificial behavior.
  - **Enhanced Thermal Stability**  
Excellent heat reflectivity and thermal performance, reducing heat transfer and improving panel longevity.
  - **Smooth, Matte Aesthetic**  
More uniform and less reflective than galvanized; ideal for architectural applications where glare reduction is required.
  - **Improved Weathering Performance**  
Superior resistance to rain, snow, ice, and cyclic temperature extremes.
-

## Coating Classifications

- **AZ50:** 0.50 oz/ft<sup>2</sup> (painted products)
- **AZ55:** 0.55 oz/ft<sup>2</sup> (unpainted panels; increased service life)

Higher AZ values correlate with improved corrosion durability.

---

## Primary Applications

- Residential and commercial roofing & siding systems
- Institutional buildings (schools, hospitals, government)
- Modern architectural façade systems
- Industrial structures
- Agricultural buildings **without livestock exposure**