

Zincalume®



# Outstanding Performance since 40 years

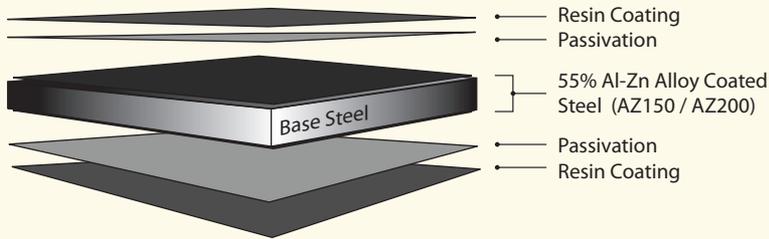
in Roof and Wall Cladding Application



  
**TATA BLUESCOPE  
STEEL**

# Zincalume®

Launched in 1976, ZINCALUME® steel, the world's leading 55% Al-Zn alloy coated steel product (55% Aluminium, 43.4% Zinc and 1.6% Silicon), is an outcome of extensive research and continues to set standards for corrosion resistance and long life. It has been proven to stand the test of time as it is designed to withstand the rigors of various climatic conditions. In fact, for two decades the product's performance has been monitored across a wide range of climatic conditions using exposure test sites and infield inspections.



Cross Section View of ZINCALUME® steel

ZINCALUME® steel has 150 g/m<sup>2</sup> or 200 g/m<sup>2</sup> metallic coating distributed equally on both surfaces. It is available in Base Metal Thickness (BMT) ranging between 0.30mm to 1.30mm and coil widths of 900 to 1250 mm.

It is offered with yield strength of minimum 300 MPa to minimum 550 MPa depending on the application. ZINCALUME® steel complies with AS1397, ASTM A792M, IS 15961 and ISO 9364 standards.



## Durability

### Remarkable Corrosion Resistance

ZINCALUME® steel combines both the galvanic protection of Zinc and barrier protection of Aluminium. The Zinc-rich region is locked in tiny pockets within the Aluminium-rich matrix (Figure 1).

The Aluminium in the coating complements the corrosion resistance process by providing barrier protection, reducing the rate of dissolution of the Zinc from the Zinc-rich areas of the alloy layer.

The Zinc-rich areas are important as they provide the product with galvanic protection. In service, galvanic action causes zinc compounds to automatically build up at cut edges and scratches by an electrolytic reaction when water or moisture is present. These slow the rate at which the surrounding coating is consumed around damaged areas. This effect is sometimes referred to as the "self-healing" property of coatings containing zinc. This has been tested by removing coating of similar thickness from ZINCALUME® steel and galvanized sheet down to the steel base, using scribe marks ranging from 0.40mm to 4.0mm in width. When exposed to the atmosphere, the differences in the samples are slight, particularly at the thinner scribe marks (Figure 2). At the cut edge, ZINCALUME® steel provides similar protection to galvanized coatings.

The adjacent pockets of the Zinc-rich phase, which are in electrical contact with the steel, provide continual galvanic protection. Thus, steel at any point is not readily available for corrosion.

On an average ZINCALUME® steel (AZ150) lasts up to four times longer than Galvanized steel (Z275) in similar environmental conditions. (Figure 3)

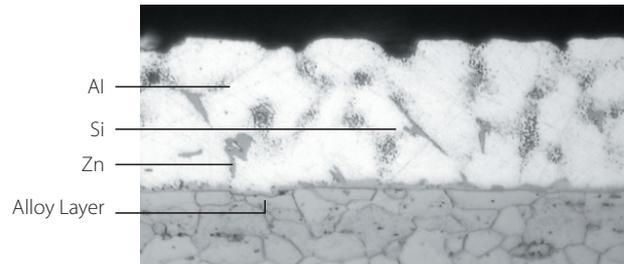
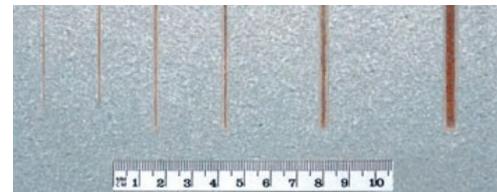


Fig. 1: Microstructure Cross Section of ZINCALUME® steel



Galvanized steel (GI) Z275



ZINCALUME® steel AZ150

Fig. 2: Cut Edge Performance of GI & ZINCALUME® steel



ZINCALUME® steel AZ150: Galvanized steel Z300:

Fig. 3: Outdoor Exposure Performance: 21 years of exposure at severe marine test site



Valpoi Bus Stand, Goa



## Assured Performance

### Advanced Manufacturing

Tata BlueScope Steel assures consistent and superior performance with the highest degree of automation, process control, an online inspection & testing facility and a well-equipped laboratory. The uniform metallic coatings on top and bottom are achieved with modern coating control system and routine testing during production. The consistency in mechanical properties is achieved through precise control in input steel chemistry and in-process parameters.

### Exceptional Design Flexibility

ZINCALUME® steel offers designers the unique combination of value for money and incredible design flexibility. Whether its the project that is being created for a purely functional application or for leading edge design, ZINCALUME® steel makes it easier to create an enduring design– for roofing and walling, framing structures and manufacturing articles.

ZINCALUME® steel can be readily spot-welded, using conditions similar to those for zinc-coated steel, easy

to paint with water based acrylic top coat, easy to handle, store and install. You can use ZINCALUME® steel with confidence.

### Long Lasting Aesthetics

A uniform smaller sized spangle covers both sides of the ZINCALUME® steel sheet improve aesthetics of building. It is manufactured using proven technology and durable surface treatment (coated with special passivation and resin system). Excellent long term exposure performance and thermal reflectivity ensures the roof and wall cladding looks newer for a longer period of time.

### Excellent Mark Resistance

The resin coating on ZINCALUME® steel provides excellent mark-resistant qualities. For the rollformer, roof fixer, builder or manufacturer, marks from sweaty hands or moisture are no more a concern. Boot and scuff marks are virtually eliminated. The result? A better looking product for the consumer.



Tensile Testing (UTS, YS & % E)



Salt Spray Corrosion Resistance Testing

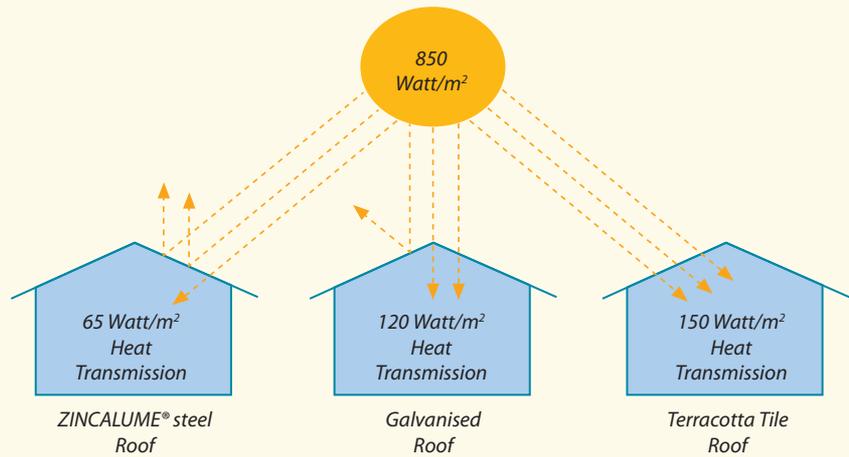


Outdoor Exposure Site - Jamshedpur, India (Industrial)



## Higher Solar Reflectivity

ZINCALUME® steel has a lower thermal mass as compared to conventional building materials, so it does not hold heat for long. The primary source of heat is sunlight. The fine spangle and special surface treatment of ZINCALUME® steel (with SRI value 57) enables it to reflect a greater portion of the sunlight and transmit less energy into the building.

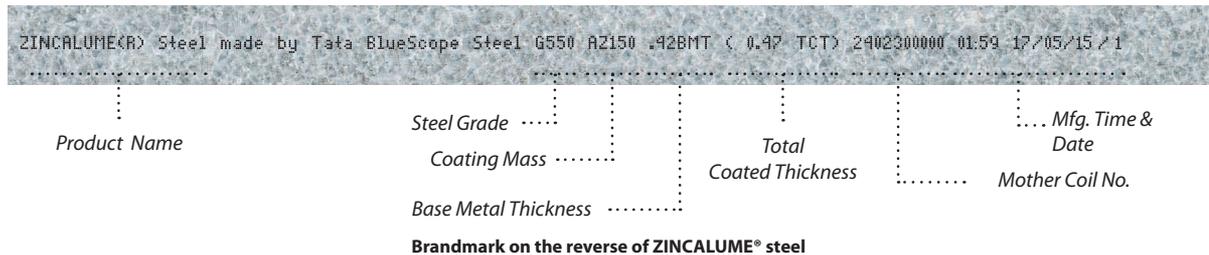


Based on a weather-worn roof where the level of reflectivity had stabilised and which were exposed to solar radiation of 850 W/m²



## A Surety of Genuineness

ZINCALUME® steel is supplied with a brand mark at regular intervals on one surface of the strip. It assures highest quality every time, backed by our team of qualified and experienced personnel at Tata BlueScope Steel.



## Environment Friendly Credentials

From an environmental point of view steel is one of the great performers. Steel is 100% recyclable - which means its life cycle is potentially continuous. ZINCALUME® steel comes with several environment friendly credentials. No welding or wastage during construction; hence no damage to local flora and fauna. Also being coated steel, it has all three benefits of Reuse, Recycle & Reduce.

## Peace of Mind

ZINCALUME® steel is also backed by a Tata BlueScope Steel Warranty\*. With up to four times the lifespan of ordinary galvanised steel, you can be confident that ZINCALUME® steel provides peace of mind for years to come.

\*Subject to terms and conditions

ZINCALUME® steel is recognised by CII Indian Green Building Council (IGBC) as Green Product in Green Building Ratings



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