

Case Study

## A NON-COMBUSTIBLE SOLUTION FOR INDUSTRIAL METAL ROOFING

December 2025



### Project name

Serendah Solar Plant Case Study

### Products used

Earthwool® Metal Roofing Roll (Unfaced) 16kg/m<sup>3</sup>  
50mm x 1200mm x 15000mm

### Building type

Solar Manufacturing Facility

### Application

Metal Roofing

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The Serendah Solar Plant is a large-scale solar manufacturing facility covering up to 73,600m<sup>2</sup> of built-up area. Operating in Malaysia's hot, humid, and rain-intensive tropical climate, the roof system required an insulation solution that could contribute to fire safety, acoustic performance and long-term moisture resistance. Knauf Insulation's Earthwool® Metal Roofing Roll (Unfaced) was installed as an infill layer between the aluminum foil and the metal roofing sheets, supporting the facility's performance requirements as well as the contractor's installation and logistical needs.



### What was the challenge?

As a manufacturing facility housing electrical equipment and continuous production processes, fire safety was a key concern for the client. The facility required a non-combustible insulation solution that could enhance building safety and align with regulatory expectations for industrial projects in Malaysia. With a large metal roof surface and Malaysia's frequent heavy rainfall, rain impact noise could easily propagate across the wide production floor. The project therefore required insulation with effective acoustic absorption to help reduce sound transmission and maintain a comfortable working environment. Additionally, the insulation had to perform consistently despite long-term humidity exposure, ensuring stable performance in a tropical climate. The project's scale – nearly 70,000m<sup>2</sup> of roofing – combined with extremely limited on-site storage created further logistical challenges. The contractor needed a material that could be delivered flexibly, stored efficiently, and installed rapidly without disrupting construction sequencing.



### What was the solution?

To address the spectrum of challenges facing the project, the Earthwool® Metal Roofing Roll (unfaced) 50mm x 16kg/m<sup>3</sup> was selected as the insulation infill for the metal roof system. Engineered for industrial metal roofing applications in tropical climates, the 16 kg/m<sup>3</sup> density provides the optimal balance of non-combustible safety, acoustic absorption, and mechanical resilience. The product is non-combustible and certified in accordance with BOMBA requirements (BS 476 Part 4), giving the client added assurance for use in a manufacturing environment. At this density and thickness, the insulation also delivers a thermal resistance of R-1.41 m<sup>2</sup>·K/W, helping to moderate heat transfer through the metal roof and support a more stable indoor environment. Additionally, the Metal Roofing Roll range is manufactured with DriTherm® Technology, a silicone treatment that provides water-repellent performance, helping the insulation maintain its shape and integrity when exposed to tropical humidity or incidental moisture. Combined with Knauf Insulation Earthwool's ability to perform consistently under long-term humidity exposure, the solution offered a durable and reliable infill layer within the aluminum foil and metal roofing system. With Knauf Insulation's compression packaging technology, a higher volume of insulation can be packed into each compressed pack, significantly reducing on-site storage requirements. Despite the increased material per pack, the product remains lightweight and manageable to handle, supporting safer and more efficient installation. This allowed the contractor to overcome severe storage constraints and receive materials in flexible delivery stages, ensuring smooth installation progress even with tight timelines and limited space.

### Why Knauf Insulation?

The Earthwool Metal Roofing Roll (unfaced) product was specified for its reliability to deliver the thermal, acoustic, and moisture-resistance performance required for a metal roof manufacturing warehouse facility in Malaysia. Products manufactured by Knauf Insulation additionally deliver a number of unique benefits that support the creation of better buildings for occupants, installers, and the planet. ECOSE® Technology, a plant-based binder free of added formaldehyde, is used in the manufacturing process to produce a product containing no chemicals found to pose a risk to humans on the Declare 'Red List'. Not only does this support improved indoor air quality through low Volatile Organic Compounds (VOCs), but it also provides a softer, cleaner product that generates less dust and reduces skin irritation during handling, improving installer comfort on site. The Metal Roofing Roll range is also made with up to 80% recycled glass, supporting sustainability. The sustainability performance is outlined in a product-specific Environmental Product Declarations (EPDs), allowing project managers to ascertain the full life-cycle performance of the product to make more informed, sustainable decisions about the products they are specifying.



## About Earthwool® Metal Roofing roll

Earthwool Metal Roofing Rolls are designed for quick and efficient installation in both single-skin and twin-skin profiled metal roof systems, including standing seam and bracketed rail constructions.

The insulation is typically laid over or between purlins, and supported by roof sheeting, metal mesh, or spacer systems depending on the roof design. Once installed, Earthwool insulation contributes to excellent thermal and acoustic performance, while its non-combustible and moisture-repellent properties support long-term durability, safety, and energy efficiency under metal cladding systems.

### Benefits of Earthwool Metal Roofing roll:

- > Superior sound absorption
- > Low water absorption advantage
- > Light weight
- > Lower carbon footprint choice
- > Installer-friendly
- > Healthy indoor air quality



### ECOSE® Technology

A unique plant-based binder which contains no added formaldehyde or phenol. It is made from natural raw materials that are rapidly renewable, and makes our insulation soft to touch and easy to handle.



### TwinTech® Technology

An advancement in insulation manufacture - the dual forming technique enables thicker products for evolving building code requirements and ensures there is a smooth finish on both sides of the insulation for optimal product handling and appearance.



### DriTherm® Technology

A silicone treatment that is added during manufacture to upgrade the moisture resistance of the glasswool insulation.



For more information about Knauf Insulation insulation products, visit:  
[www.knauf.com](http://www.knauf.com)

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