

Case Study

Knauf Insulation products enhance roof performance at Western Sydney International Airport

September 2024



Project Name

Western Sydney International Airport

Products Used

- › Knauf Insulation Roof Blanket
- › Knauf Insulation Acoustic Range (11kg/m³ – 35kg/m³)
- › Other custom products

Building Type

Airport Terminal

Application

Commercial metal roof & Soffit

Contractor

Red 8 Roofing

Distributor

RoofLogic

Principal Contractor

Multiplex Constructions

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The new Western Sydney International Airport is a state-of-the-art piece of infrastructure currently in the final stages of construction, due to open in late 2026. Designed to maximise the passenger experience, the airport will offer incredible views through the floor to ceiling windows and skylights and natural ventilation.

To achieve this, careful planning and construction of the roof was critical for achieving high level acoustic compliance. Knauf Insulation products were selected as they have demonstrated acoustic, thermal and fire safety performance requirements. Knauf Insulation were also able to deliver prompt samples for testing, flexibility in product delivery, and proactive technical advice and support.

What was the challenge?

The Western Sydney International Airport design has been labelled a 'once-in-a-generation project' due to its unique structure. The design incorporates floor-to-ceiling windows, displaying the stunning Blue Mountains backdrop and offering an abundance of natural lighting. The terminal design additionally features a single-ridge metal roof in an aerofoil profile reminiscent of an aircraft wing. As a result, roofing insulation that passed stringent testing was required in order to achieve acoustic and thermal performance for the project's entire envelope.

Non-combustibility and high thermal performance were also key criteria to ensure safety and maximum comfort for the 10 million passengers expected to pass through the airport each year once in operation.



What was the solution?

The project's principal contractor, Multiplex, selected roofing specialists Red 8 Roofing to complete the roofing scope of works for the terminal building. After a rigorous selection process, Knauf Insulation was selected by Red 8 Roofing to supply glasswool insulation solutions. Red 8 Roofing's Project Manager, Hunter Key, explained that not only did the range of specialised products meet compliance, but Knauf Insulation made the entire process simple, from compliance testing to logistics.

"We found that Knauf Insulation were able to deliver in a short timeframe, with custom engineering and custom testing, and that was really what led me towards them. Whenever we came to them with an issue, they came back to us with a solution. Nothing was too hard."

Hunter Key, Red 8 Roofing – Project Manager

Due to its unique and modern design, the terminal and piers (east and west) required an acoustic rating of $R_w 55$. Knauf Insulation produced a custom roll product, which was specified following acoustic testing that showed excellent acoustic performance. Given the insulation is visible on the semi exposed soffit, a Black Glass Veil (BGV) facing was added for aesthetics without compromising acoustic performance.

To ensure compliance, a high-density, multi-layered system was implemented on the roof, incorporating a combination of 11kg/m³ and 35kg/m³ rolls. Additionally, a 14kg/m³ Soffit batt was applied



to the internal roof lining, enhancing both thermal and acoustic performance of the entire roofing system.

Knauf Insulation products are tested to be non-combustible in accordance with AS 1530.1. Due to the semi-exposed soffit design and the implementation of BGV, additional fire testing was undertaken to ensure compliance.

Knauf Insulation's glasswool roofing insulation is produced with ECOSE® Technology, a plant-based binder, with no added formaldehyde, acrylics, dyes or colours. ECOSE® Technology also allows the insulation to be compressed at a higher rate, meaning more product per package and minimised logistics requirements without compromising performance.

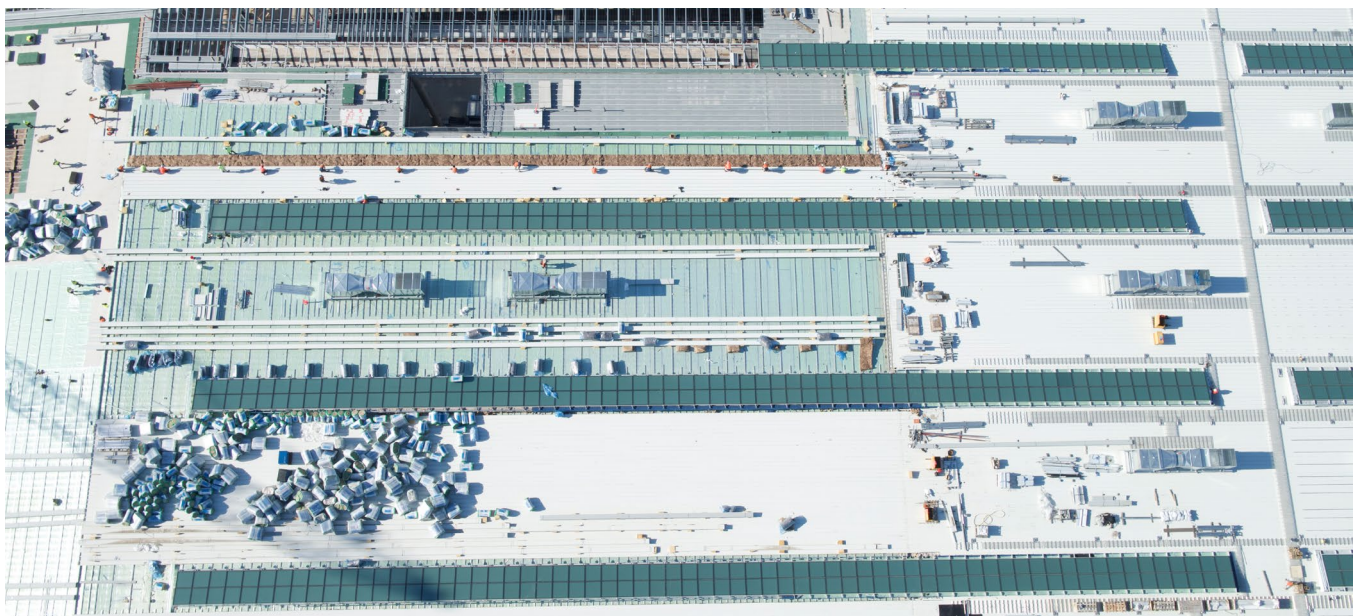
Why Knauf Insulation?

Knauf Insulation's products exceeded requirements across the project's key performance criteria – thermal, acoustic, and fire safety performance. As a result, the airport is able to deliver a safe, comfortable passenger experience complete with stunning views and plenty of natural lighting.

With construction of the project taking place in stages, product availability was another key consideration in the decision-making process. Knauf Insulation's ability to fast-track manufacturing of custom products and meet last-minute scheduling changes made it a reliable choice. Compression packaging additionally cut down on logistics and warehousing requirements and simplified installation.

Sustainability was another important aspect that had to be considered throughout the project. Through the inclusion of ECOSE® Technology, Knauf Insulation's glasswool products are Declare Red List free – meaning they are free from any raw materials found on the Red List. All products are also GreenTag Level A Certified and made from up to 80% recycled glass, attributes that allowed Red 8 Roofing to meet environmental sustainability reporting requirements.

Overall, Hunter was incredibly pleased with the outcome of the partnership with Knauf Insulation. *"I would definitely recommend Knauf Insulation. They have been great throughout procurement, through to storage, logistics handling, through to technical support and dealing with logistics to order last minute."*



About Knauf Insulation Roof Blanket

Knauf Insulation Roof blanket (unfaced) provides thermal and acoustic insulation for commercial roofs. Condensation control can be achieved when the product is faced with foil of the appropriate duty classification. The Knauf Insulation Roof blanket range includes a selection of R-values to provide builders, designers and installers the opportunity to choose the best thermal performance for their project. This product will improve the thermal comfort and energy efficiency of the building in which it has been installed thus keeping it cool in summer and warm in winter.

- › High thermal performance – year-round comfort
- › Sound absorbing
- › Saves energy – lower energy bills
- › No added formaldehyde
- › Soft to handle and install
- › Friction fit
- › Odourless
- › Non-combustible



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, is 70% less energy intensive to manufacture than traditional binders, 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.

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Declare & Red List Free

Knauf Insulation's glasswool, free from Red List materials and certified for excellent air quality, features up to 80% recycled content and ECOSE® Technology, offering safer, eco-friendly building solutions.



For more information about Knauf Insulation's range of insulation products, visit:
www.knauf.com

Knauf Insulation Pty Ltd

23 Corporate Drive, Cannon Hill,
Queensland, 4170

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Contact Us

Phone: 07 3393 7300
Email: info.au@knaufinsulation.com

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