

## NEPEAN HOSPITAL - CASE STUDY

April 2021



### SUMMARY

Located in Kingswood, a suburb in Sydney's Western Suburbs, the new Stage 1 Tower of Nepean Hospital is 14 storeys and over 100 metres high. With superb views stretching across Sydney and the Blue Mountains, on completion the Stage 1 Tower will be one of the tallest hospital buildings in Australia. Delivered under the \$576 million Stage 1 Nepean Hospital Redevelopment, the tower includes an expanded emergency department, 18 birthing suites, a neonatal intensive care unit, more than 16 operating theatres and more than 200 additional beds in contemporary and bright in-patient units. As a modern medical facility, the design is expected to meet new sustainability compliance standards determined by GreenStar®, as well as fire-rating performance requirements. With insulation material selection playing an important role, Knauf Insulation products were chosen to help achieve a fire-resistant and tight thermal envelope.

<b>Products Used:</b>	Knauf Insulation Acoustic partition batt 11kg/m <sup>3</sup> Earthwool® SoundShield R2.5HD
<b>Application:</b>	Wall
<b>Construction type:</b>	Hospital

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### WHAT WAS THE CHALLENGE?

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The Nepean Hospital Redevelopment has been designed using GreenStar, a sustainability compliance rating tool, to ensure the building is delivered with sustainability as a priority. GreenStar assesses the sustainability attributes of a project through impact categories, known as 'credits'. A credit addresses an initiative that improves or has the potential to improve a project's sustainability performance. Each credit defines a clear outcome that a project must meet.

Where the outcome is verified to have been met, a project will be rewarded with points. Once all credits are assessed, the total number of points achieved is compared against the available points in the rating tool and a certified rating is awarded. With the Nepean Hospital Redevelopment aiming to achieve a 4 Star Rating, the exhaustive compliance requirements meant that additional consideration was required when selecting products to ensure they met the requirements of the GreenStar rating program.

Additionally, in accordance with the National Construction Code Building Classifications (NCC) 2019, as a hospital and building greater than four storeys high, the project was classified as a Type A construction. This classification required the external wall components, including insulation, to be tested and deemed non-combustible in accordance to AS 1530.1.

Adhering to such high standards demanded careful planning and construction of the building's thermal envelope, with insulation material selection playing an integral role. To achieve a GreenStar® rating and NCC compliance, the building was required to have very high thermal and fire-resistant properties, which included installing highly efficient insulation products within the walls to meet these strict specifications.

### WHAT PRODUCTS WERE USED?

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Knauf Insulation products were chosen to insulate the walls, delivering a thermally efficient building envelope and meeting GreenStar® compliance standards. Knauf Insulation products are the only non-combustible, glasswool insulation that achieves Global GreenTag™ Level A. This is the highest level of product certification for sustainability under the independent rating program. This certification ensured CPB Contractors and Austral Interiors achieved the credit points required to demonstrate GreenStar® compliance for the project. Applicable GreenStar® Credit points achieved by selecting Knauf Insulation products include:

- GreenStar® 'Design and As Built v1.3' and 'Interiors v1.3' Rating Tools Credits:
  - Sustainable Products, Life Cycle Assessment
- GreenStar® 'Performance v1.2' Rating Tool Credit:
  - Procurement and Purchasing: Refurbishment Materials

"One of the reasons we selected Knauf Insulation products for this project was their GreenStar® rating. The price and quality of Knauf Insulation products is always good; however, Knauf Insulation products also meet the GreenStar® requirements and GreenTag certification needed for government projects like the Nepean Hospital," said Jennifer Wang, Austral Interiors.

When we're designing projects like this, it's better when we can use the same brand of products for the whole system, which is what we have been able to achieve with Knauf Insulation," Jennifer said.

Knauf Insulation Acoustic partition batt 11kg/m<sup>3</sup> was installed in internal steel stud framed walls, in addition to fire-rated plasterboard, to achieve the acoustic and fire performance requirements of  $R_w + C_{tr} 50$ .

Knauf Insulation products have been stringently tested and deemed non-combustible in accordance to AS 1530.1 to meet the building code requirements. Earthwool® SoundShield R2.5HD was installed within the steel stud framed external walls as the main material to bolster the thermal performance of the external wall system and contribute to the required R-value of R2.8. Due to the building class type, the Knauf Insulation products were required to be tested and deemed non-combustible to AS 1530.1.



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### WHAT WAS THE RESULT?

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Knauf Insulation glasswool products have helped to exceed the stringent requirements for insulation and thermal performance outlined for GreenStar® ratings. By selecting Knauf Insulation products, CPB contractors utilised the applicable credit points for Knauf Insulation GreenTag certified products while achieving the required system  $R_w + C_{tr}$  values for the internal partition walls, as well as the total system R-value required for external wall applications for the project.

This was achieved while also complying with non-combustible requirements of AS 1530.1 for the projects building class (9a) and construction type (Type A). Construction of the Stage 1 Tower is expected to be complete in late 2021 and will open in 2022 following an operational commissioning phase.



### For more information please contact:

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