

THE FERN - CASE STUDY

April 2021



SUMMARY

The Fern is Australia's first apartment building certified to Passive House standards, the highest building standard for energy efficiency in the world. Steele Associates originally developed The Fern with the intention of selling each of the 11 units. Instead, they partnered with Urban Rest, a specialist executive letting agency, to make the apartments available to short-stay guests and re-birthed The Fern as serviced apartments.

Completed in July 2020, the project has since been awarded two National Greensmart awards from the Housing Industry Association (HIA) and shortlisted for several more awards by both the HIA and The Urban Developer. Insulation is one of the five core principles of the 'Passivhaus Design' movement, which aims to create buildings that do not rely on artificial heating or cooling to create a comfortable indoor environment. Adhering to such high standards demanded careful planning and construction of the building's thermal envelope. Knauf Insulation products were chosen to insulate both the walls and ceiling to help achieve a tightly sealed building envelope that met the performance requirements of Passive House certification.

Products Used: Earthwool® Ceiling batt
Earthwool® Wall batt

Application: Ceiling and Walls

Construction type: Residential - Apartment

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WHAT WAS THE CHALLENGE?

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"We set out to design, build and develop sustainable, bespoke apartments and create a fresh, joyful oasis in the heart of the gritty city. After years of research and analysis, we settled on Passivhaus as the most rigorous, comprehensive sustainable building methodology in the world, and challenged ourselves to deliver a new benchmark of sustainable high-density living in Australia," commented Oliver Steele, director, Steele Associates.

The core objective of Passive House design is to keep the internal environment comfortable with a sealed building envelope, thoughtful ventilation and the elimination of thermal breaks. A significant element of meeting the standards was reliant on the building having very high thermal properties based on bulk insulation installed within the ceiling and wall cavities. This required the installation of extremely efficient products to meet these strict specifications.

WHAT PRODUCTS WERE USED?

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Knauf Insulation was engaged by Steele Associates to provide products which would help to meet or exceed the desired R-values for this residential project. The insulation contributed heavily to the thermal performance outcomes outlined in the Passive House certification standards. Knauf Insulation solutions were used in the ceiling cavities to achieve extremely high R-values. Earthwool® ceiling batts were chosen as the product performs better than conventional glasswool. Produced using up to 80 per cent recycled glass, Earthwool® features ECOSE® Technology, a sustainable, bio-based binder with no added formaldehyde, meeting the sustainability objectives of the building.

WHAT WAS THE RESULT?

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Knauf Insulation glasswool solutions have helped to exceed the stringent requirements for insulation and thermal performance outlined for Passive House design. With an extreme reduction in energy costs, achieving the stringent Passive House certification is largely benefitted by creating a high performing thermal building envelope, unique construction methods and building membranes that create superior air tightness for the overall project.

"Earthwool is the most economical, easy to use insulation that offers terrific thermal as well as acoustic insulation. We love the recycled content and itch-free installation. We were delighted with the premium results at affordable prices," commented Steele.

For more information please contact:

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