



AFFILIATED
INSULATION
INDUSTRY
COALITION

Thermal Performance for a Climate Resilient Home

THERMAL PERFORMANCE MATTERS

Australians spend 90% of their time indoors,ⁱ yet our homes are among some of the least energy efficient globally.ⁱⁱ Millions of Australia's homes were built before mandatory minimum energy performance standards were introduced, and often suffer from poor thermal performance.

Homes with high thermal performance offer **significant resilience benefits**, including lower energy consumption to maintain comfortable temperatures, reduced strain on the grid during peak energy demand, and greater resistance to extreme weather events, ensuring **comfort and safety** for occupants.

THE URGENCY TO IMPROVE THERMAL PERFORMANCE

Global electricity demand trends: Peak electricity demand in buildings is set to rise globally, especially in regions with growing cooling needs.ⁱⁱⁱ Australia is already experiencing increased extreme heat events,^{iv} making thermal performance improvements critical.

Misalignment of energy demand: In the residential sector, peak energy demand for heating often mismatches with the supply of low-cost renewable energy, such as solar PV. Improving thermal performance can significantly reduce heating and cooling loads, easing pressure on infrastructure, and reducing costs.^v

System-wide benefits: Efficient homes lower overall energy demand and require smaller and less costly energy systems. They are more climate resilient, and help support the wider transition to a clean, renewable energy system.

THERMAL PERFORMANCE AND CLIMATE RESILIENCE

Australian homes are particularly exposed to the impacts of climate change. **Current energy rating systems do not adequately account for rising temperatures.^{vi}**

By 2070, modelling by Renew predicts that a 2024-built 7-star NatHERS rated home will experience indoor temperatures similar to today's uninsulated 1.1-star homes during heatwaves.

Unrenovated 1.1-star homes will face even more extreme conditions.^{vii} These conditions will strain households, and energy systems, particularly during periods of peak demand.

‘Climate-ready’ thermal upgrades can yield the greatest reduction in annual peak demand across all home types, due to a marked reduction in heating and cooling space conditioning. ‘Quick fix’ climate ready upgrades could help to reduce annual peak demand by 1.4–3.5 kW per home.^{viii}

High quality thermal performance retrofits, delivered by certified professionals using compliant products, can also reduce heatwave-related deaths and health issues, and improve general health outcomes and costs.

ADAPTING TO A CHANGING CLIMATE FUTURE

Continued poor thermal performance in Australian homes will result in increased health and productivity costs due to climate related stresses and acute resilience issues during power outages, where **insulation acts as a critical line of defence for safe indoor temperatures**.

Thermal performance retrofits in inefficient homes should be viewed as **essential health and climate adaptation measures**, not merely energy saving initiatives.

Investing in high quality thermal performance upgrades for Australia’s housing stock is essential to:

- ✓ Reduce energy waste and transition costs.
- ✓ Enhance Australia’s resilience to climate change impacts.
- ✓ Protect and improve public health climate safety.

Efficient, thermally sound homes are not just an energy solution; they are the foundation for an electrified, net zero compatible, climate resilient future.

ⁱ DCCEEW, [Indoor Air](#).

ⁱⁱ American Council for an Energy-Efficient Economy (ACEEE), [International Energy Efficiency Scorecard](#), 2022.

ⁱⁱⁱ IEA, [More efficient and flexible buildings are key to clean energy transitions](#), 2024.

^{iv} CSIRO, [State of the climate report](#), 2024.

^v EEC and ANZ, [Putting energy efficiency to work](#), 2023.

^{vi} Renew, [Building for a changing climate](#), 2024.

^{vii} Ibid.

^{viii} Climateworks, [Climate-ready homes: Building the case for a renovation wave in Australia](#), 2023.