Glossary of Key Terms

Heat Resilient Building Design: Beyond Energy Efficiency

Albedo: The measure of the reflectivity of a surface; a high albedo indicates that a surface reflects a large percentage of solar radiation, while a low albedo indicates high absorption.

Cross-Ventilation: A passive cooling strategy that involves designing openings (windows, vents) on opposite sides of a building or room to allow for airflow driven by wind pressure differences.

Dynamic Shading: Shading devices (e.g., louvers, blinds) that can be adjusted manually or automatically to control the amount of solar radiation entering a building based on time of day or environmental conditions.

Energy Efficiency: The ability to minimise energy consumption while achieving a desired level of performance or comfort, often through insulation, efficient appliances, and optimized building systems.

Evapotranspiration: The process by which water is transferred from the land to the atmosphere by evaporation from the soil and other surfaces and by transpiration from plants. It has a cooling effect on the surrounding environment.

Heat Resilience: The capacity of a building or urban area to withstand and recover from extreme heat events while maintaining acceptable levels of comfort, functionality, and safety, with minimal reliance on energy-intensive mechanical cooling.

Hybrid Ventilation: A ventilation strategy that combines natural ventilation methods (e.g., wind-driven airflow, stack effect) with mechanical ventilation systems to optimise indoor air quality and thermal comfort.

NatHERS (National House Energy Rating Scheme): An Australian scheme that rates the energy efficiency of a home based on its design and construction, providing a star rating from 0 to 10.

NCC (National Construction Code): A set of uniform technical provisions for the design and construction of buildings and other structures in Australia, including requirements for energy efficiency and climate adaptation.

Night Purge Ventilation: A passive cooling technique that involves opening windows or vents during cooler night-time hours to flush out heat absorbed by the building's thermal mass during the day.

Passive Cooling: Building design strategies that utilise natural environmental conditions (e.g., solar radiation, wind, temperature differentials) to minimise heat gain and enhance cooling without relying on mechanical systems.

Phase Change Materials (PCMs): Substances that absorb and release thermal energy during the process of melting and solidifying at a specific temperature, helping to stabilise indoor temperatures.

Stack Effect: A natural ventilation principle where warmer, less dense air rises and exits a building through high-level openings, drawing cooler, denser air in through lower openings.

Thermal Mass: The ability of a material to absorb and store heat energy. High thermal mass materials can moderate indoor temperature fluctuations by absorbing heat during warmer periods and releasing it during cooler periods.

Urban Heat Island (UHI): A phenomenon where urban areas experience significantly higher temperatures than their surrounding rural areas due to factors such as dark surfaces, lack of vegetation, and waste heat.

Ventilated Facade: A double-layer exterior wall system with an air cavity between the outer cladding and the insulation, which allows for air circulation and helps to dissipate heat and moisture.

Whole-of-Home Efficiency Standards: A framework that considers the total energy performance of a dwelling, including its thermal efficiency, heating and cooling systems, hot water systems, lighting, and appliances, as part of the NCC.