

## **Design Practices, Policies and Guidelines towards Implementing Architectural Passive Cooling Strategies in Public Library Buildings in Temperate Climates**

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**Abstract :** Some existing sustainable public libraries in New Zealand now depend on air conditioning system for cooling. This seems completely contradictory to sustainable building initiatives. A sustainable building should be 'self-sufficient' and must aim at optimising the use of natural ventilation, wind and daylight and avoiding too much summer heat penetration into the building, to save energy consumption and enhance occupants' comfort. This paper demonstrates that with appropriate architectural passive design input public libraries do not require air conditioning. Following a brief outline of how our dependence on air conditioning has spread over the full range of building types and climatic zones, this paper focuses on public libraries in temperate climates where passive cooling should be feasible for long periods of mild outside temperature. It was found that current design policies, regulations and guidelines and current building design practices militate passive cooling strategies. Perceived association with prestige, inflexibility of design process, rigid planning regulations and sustainability rating systems were identified as key factors forcing the need for air conditioning. Recommendations are made on how to further encourage development in this direction from the perspective of architectural design. This paper highlights how architectural passive cooling design strategies should be implemented in government initiated policies and regulations to develop a more sustainable public libraries.

**Keywords :** public library, sustainable design, temperate climate, passive cooling, air conditioning

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