OPEN FACE

Beyond the Façade

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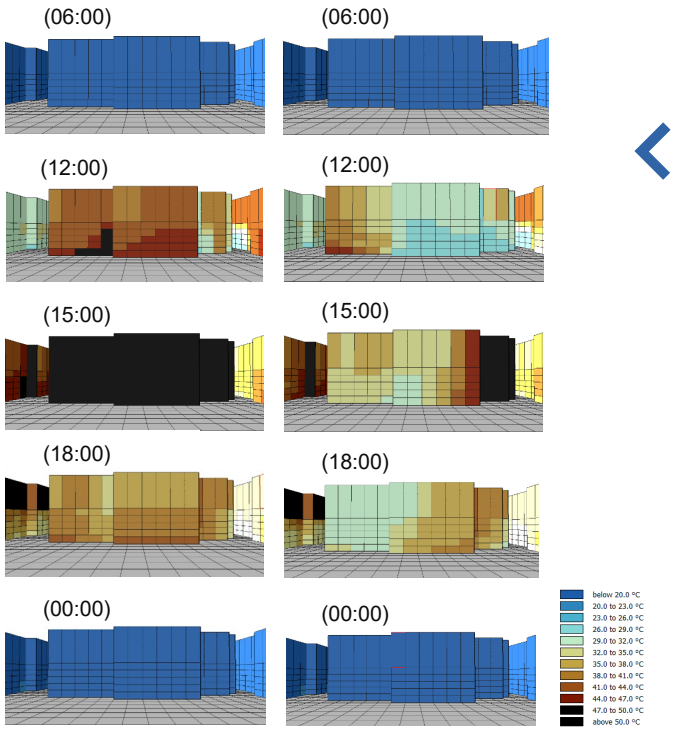
Living Buffer Zones as Environmental Envelopes

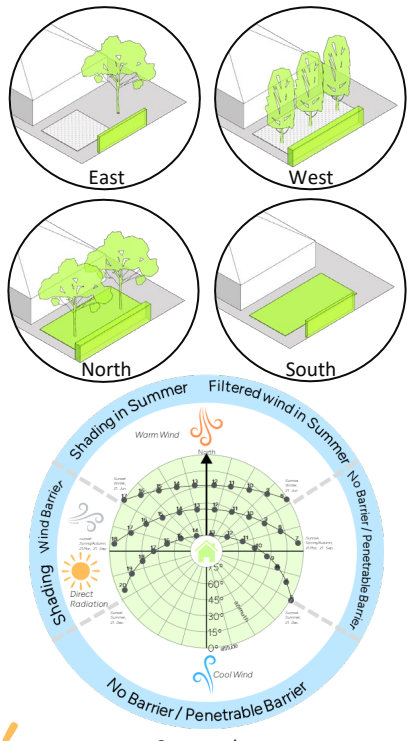
This project rethinks the relationship between greenery and the building envelope by positioning front yards as living environmental buffer zones between urban streets and indoor spaces. Through climate-responsive vegetation strategies and environmental simulations, the research explores how façade-adjacent greenery can improve thermal conditions, air quality, and passive environmental performance. The work proposes a nature-based extension of the façade that mediates solar exposure, airflow, and microclimatic conditions to support healthier and more resilient residential environments.



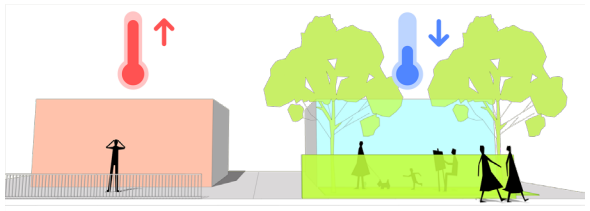
Façade Thermal Response
Comparative thermal imagery demonstrates the influence of vegetation on reducing façade surface heat exposure throughout the day.

Climate-Responsive Yard Strategies
Vegetation placement and species selection are strategically adapted to yard orientation and microclimatic conditions, including solar exposure, prevailing winds, shading, and seasonal environmental variation.

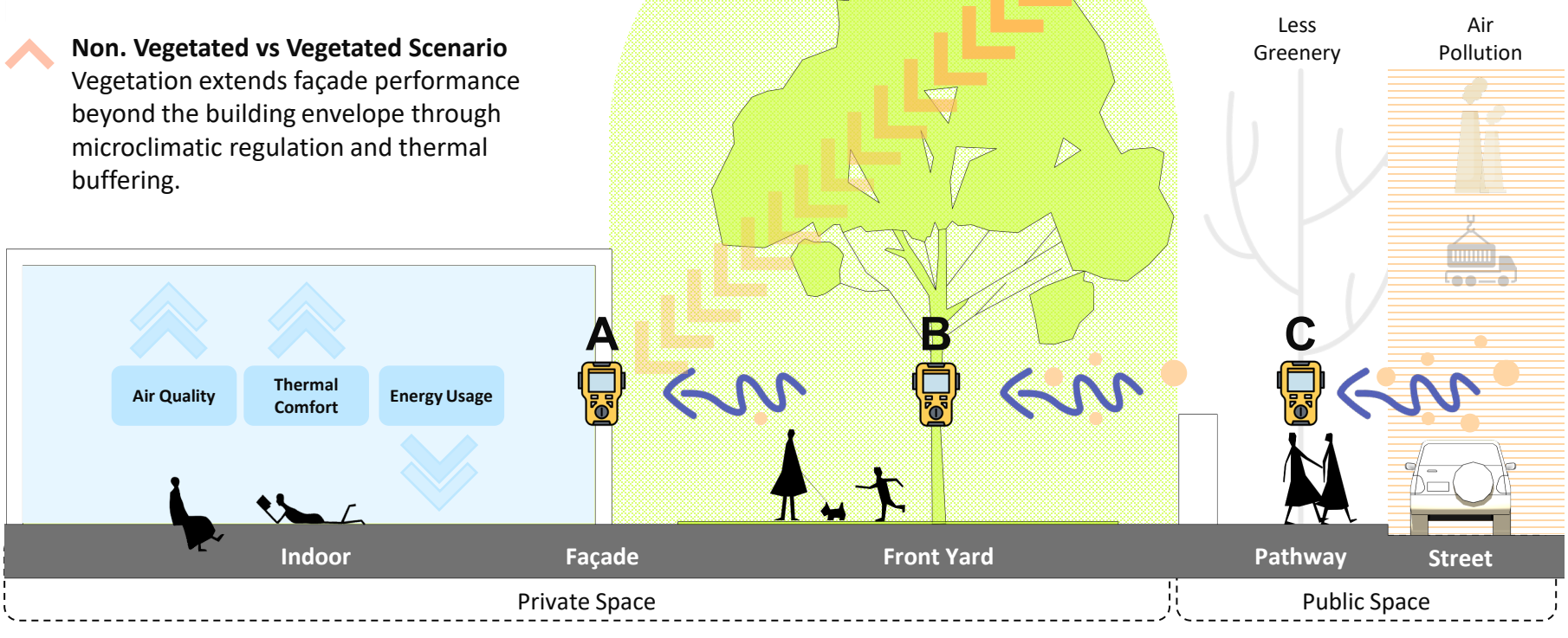
Toward Living Façades
The environmental envelope of future buildings may extend beyond the wall through climate-responsive vegetation systems.



Case study:
Melbourne, Australia



Non. Vegetated vs Vegetated Scenario
Vegetation extends façade performance beyond the building envelope through microclimatic regulation and thermal buffering.



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