NP4003

TOWARDS 'PROACTIVE' RETROFITTING: DEVELOPING A REGENERATIVE FRAMEWORK FOR BUILDING RETROFITS

Research Question

How can regenerative concepts be integrated into the building retrofit design process?

This research attempts to answer this question by developing a regenerative framework for building retrofits. This primarily involves proposing a 'proactive' retrofit approach to shift the way designers think and act towards building interventions.

Conceptual Framework

Figure 1 highlights the conceptual framework of this research to propose a 'proactive' and 'reactive' retrofitting approach. Developed from the idea of regeneration as a level of work, this framework highlights both the distinction and correlation between conventional approaches to building retrofits (reactive) and approaches embedded in the regenerative worldview (proactive). By integrating some of the key regenerative concepts, a successful proactive retrofit will produce a building which has:

- The ability to interact with and meaningfully add value to its surrounding systems.
- The potential to contribute to the ongoing improvement and regeneration of its place.
- Restored the capability of natural systems to expand and co-evolve with human systems in the built environment.
- Achieved resource self-sufficiency and significantly improved the health, wellbeing and productivity of its inhabitants.
- Expanded the reach of its positive impacts through close collaboration with all of a building's stakeholders – owners, investors, inhabitants, neighbours and the wider community.
- Improved the capacity of each individual to think and act more systemically towards the living world around them.

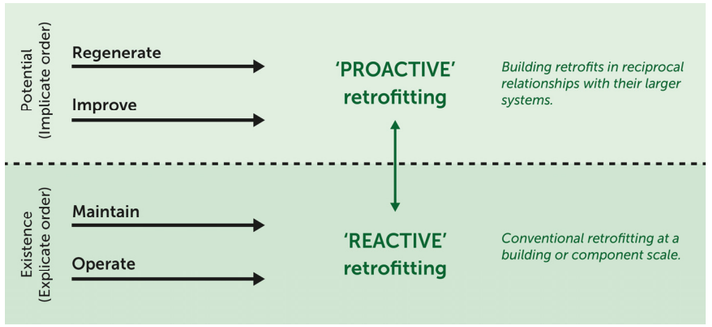

Figure 1: 'Proactive' and 'Reactive' Retrofitting (developed after Mang & Reed, 2012).

Process Model for 'Proactive' Retrofitting

So how can a designer implement this proactive thinking into the building retrofit process? Figure 2 highlights the process model for proactive building retrofits which is developed around an understanding of a building's place. Without truly understanding what is at the core of a building's place, the retrofit design process will fall back into a reductionist mindset by devising strategies that do not add positive value to its larger system. Starting from place will enable a clear focus for all team members in finding a building's true potential and organising and developing values, goals, principles and solutions around a common purpose. Each stage is broken down into the key steps required to achieve a proactive retrofit outcome. This process model presents some of the crucial questions a design team needs to consider at each stage to encourage rather than limit creative solutions for achieving proactive retrofit outcomes.

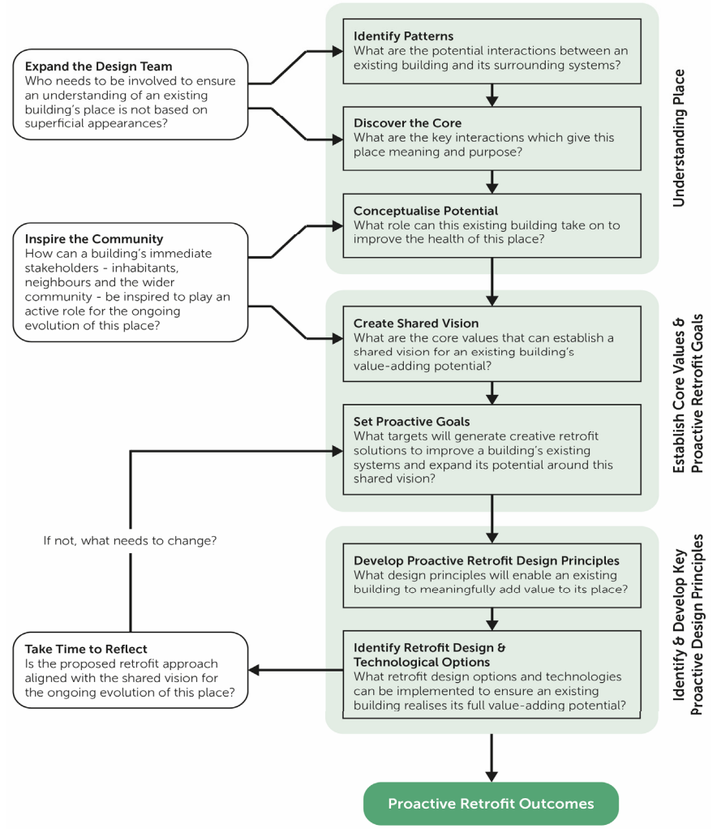

Figure 2: Process Model for Proactive Retrofitting.

Key 'Proactive' Retrofit Design Principles

The following five principles have been identified and developed in this research as the *key* proactive retrofit design principles:

- Proactive Retrofits Enable Positive Interactions
- Proactive Retrofits Restore Local Ecosystems
- Proactive Retrofits Mitigate the Surrounding Microclimate
- Proactive Retrofits Promote Energy Sharing
- Proactive Retrofits are Adaptable

Figure 3 highlights these key proactive retrofit design principles in alignment with the regenerative core values and proactive retrofit goals developed by this research.

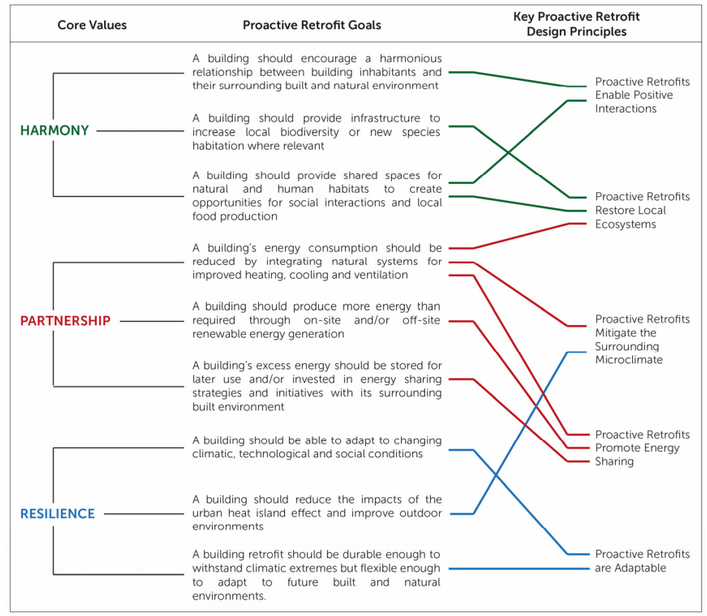

Figure 3: Alignment of key principles with core values and proactive retrofit goals.

Future Work

This research was conducted for a Masters by Research degree. I have recently applied to continue this research on to a PhD at UNSW. Future directions will involve scaling up these regenerative concepts, possibly as a decision-support model for regenerative neighbourhood development.

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