

Climate Safe House: A Community Housing Project Tackling Catastrophic Sea Level Rise in Coastal Communities

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Abstract : New Zealand, an island nation, has an extensive coastline peppered with small communities of iconic buildings known as Bachs. Post WWII, these modest buildings were constructed by their owners as retreats and generally were small, low cost, often using recycled material and often they fell below current acceptable building standards. In the latter part of the 20th century, real estate prices in many of these communities remained low and these areas became permanent residences for people attracted to this affordable lifestyle choice. The Blueskin Resilient Communities Trust (BRCT) is an organisation that recognises the vulnerability of communities in low lying settlements as now being prone to increased flood threat brought about by climate change and sea level rise. Some of the inhabitants of Blueskin Bay, Otago, NZ have already found their properties to be un-insurable because of increased frequency of flood events and property values have slumped accordingly. Territorial authorities also acknowledge this increased risk and have created additional compliance measures for new buildings that are less than 2 m above tidal peaks. Community resilience becomes an additional concern where inhabitants are attracted to a lifestyle associated with a specific location and its people when this lifestyle is unable to be met in a suburban or city context. Traditional models of social housing fail to provide the sense of community connectedness and identity enjoyed by the current residents of Blueskin Bay. BRCT have partnered with the Otago Polytechnic Design School to design a new form of community housing that can react to this environmental change. It is a longitudinal project incorporating participatory approaches as a means of getting people 'on board', to understand complex systems and co-develop solutions. In the first period, they are seeking industry support and funding to develop a transportable and fully self-contained housing model that exploits current technologies. BRCT also hope that the building will become an educational tool to highlight climate change issues facing us today. This paper uses the Climate Safe House (CSH) as a case study for education in architectural sustainability through experiential learning offered as part of the Otago Polytechnics Bachelor of Design. Students engage with the project with research methodologies, including site surveys, resident interviews, data sourced from government agencies and physical modelling. The process involves collaboration across design disciplines including product and interior design but also includes connections with industry, both within the education institution and stakeholder industries introduced through BRCT. This project offers a rich learning environment where students become engaged through project based learning within a community of practice, including architecture, construction, energy and other related fields. The design outcomes are expressed in a series of public exhibitions and forums where community input is sought in a truly participatory process.

Keywords : community resilience, problem based learning, project based learning, case study

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