

Using Virtual Reality (VR) to assess willingness to pay for Green Infrastructure in Residential Development

Green Infrastructure (GI) provides many environmental and social benefits in residential development such as flood attenuation, habitat for biodiversity, thermal insulation and the biophilia effect. As such, it helps to mitigate climate change in urban development. This study explores to what extent home buyers are willing to pay for green infrastructure (GI) in residential development. Using VR technology participants assessed 5 versions of the same development with different levels of GI and stated the amount they were prepared to pay for an apartment. The project was executed by Kth Stockholm in Sweden and UTS in Australia.

Why the study:

- Climate change is affecting our cities and urban areas.
- GI provides a sustainable and multifunctional option to improving air quality, attenuating flood risk, providing habitat for biodiversity, improving thermal performance and delivering the biophilia effect.
- Given the benefits, what evidence is there that buyers pay more for apartments in developments with good GI?

What we did:

- A comprehensive literature review was undertaken, and an innovative research methodology was developed. We designed a medium density residential development comprising 4 five-story blocks around a central courtyard. Five iterations of the development with different levels of GI were designed. Level 1 had minimal GI; just a lawn, whereas level 5 had extensive GI features including mature trees, green walls and green roofs, mature planting and water features. Participants were asked to look at each option and then to select the one they liked the most.

What we found:

- The research found that increased GI is needed to attenuate the impacts of climate change and that most participants preferred options 3 or 4, so mid range GI and some were prepared to pay a premium for the benefits of the GI. The similarities and differences between Sweden and Australia are interesting given their different climate zones.
- However, the level of GI needed to attenuate climate change requires investment by public bodies and councils.
- The use of VR creates significant opportunities to research different designs and environments.

What this means:

- The research highlights solutions for enhancing climate change resilience through residential development and GI and that buyers do value property with attractive GI. Property developers, homeowners and society as a whole, can benefit by adopting GI.