

**QUT researcher poses the question: demolish and rebuild or refurbish?**

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**A QUEENSLAND University of Technology researcher has come up with a tool to help building owners decide whether they should demolish and rebuild or refurbish ageing buildings.**

Thousands of buildings in the central business districts of major Australian cities have reached "a certain age" when decisions must be made about their futures, according to QUT Associate Professor Jay Yang, from the School of Urban Development.

Yang said these ageing buildings were products of the 1970s building boom.

"They no longer meet tenants' changing requirements or reached energy efficiency standards and the question is: demolish and build new or re-life through refurbishment," he said.

Following extensive research with a national team of building industry experts and researchers from three universities at the Co-operative Research Centre for Construction Innovation, headquartered at QUT, Yang developed a set of guidelines to test the commercial, technical and environmental viability of "re-living" projects.

"As buildings age they become more costly to run, no longer allow the functionality for today's work styles, and they can potentially make people sick," Yang said.

"With the growing commitment to sustainability, improving existing building stock is an attractive option and it is estimated up to 50 percent of annual capital budgets will go to re-living by the year 2020."

The research team studied the re-living of three government buildings, each 30–40 years old, in Brisbane, Melbourne and Sydney to bring them up to the standards of today's office operation and environmental performance.

According to Yang, key considerations for re-living projects include:

- Integrated analysis of market demands by building type, location and tenancy;
- The optimisation of internal space to cater for changes in the way we work such as the addition of meeting rooms, common space, hot-desking, etc;
- The residual service life and condition reports of the building to allow redistribution of office space and services and cater for future maintenance requirements;
- Recycling of materials from refitting and waste management; and
- Overall project management in terms of work scheduling around existing tenants, contractual arrangement, building procurement, onsite work organisation and improved workplace health and safety.

Yang said high construction costs, labour shortages, scarce resources and the increasing emphasis on sustainability had all been directing the attention towards re-living.

He said different parts of buildings had different life spans.

"Whereas the building structure may last 80 to 100 years, facades date aesthetically and physically with a shorter life of 30 to 40 years, while mechanical systems such as lifts, ventilation and air conditioning last only 20 to 30 years," he said.

"But communications and computer systems need to be changed every three years or so while the partitioning and power cabling have a life of five to 10 years.

"Because of changes to office work routines, organisational flexibility, occupational health standards, and environmental rating of buildings, each of the ageing building's elements presents challenges to building owners."

Yang said re-living provided the opportunity to coordinate all these aspects and to rebuild a healthier and better performing building with non-toxic material, innovative systems and maximum use of natural ventilation and daylight.

"Such upgrade to office space will help reduce vacancy rate and improve rental returns," he said.



Queensland University of Technology Associate Professor Jay Yang