

RESEARCH DIRECTIONS

Rehabilitating steel structures

Professor Brian Uy, Dr Xinqun Zhu and Dr Olivia Mirza of the Centre for Civionics - Infrastructure Engineering, have received funding to develop an innovative technology to connect steel and concrete elements in steel framed structures. This ARC Discovery project will allow new structures to be made demountable and will increase the remaining life of existing infrastructure.

'Current estimates in Australia have revealed that approximately 40% of landfill waste is directly attributed to building and construction', says Professor Uy. 'To reduce this amount we can make changes in construction materials and methods of construction and demolition. And in the current economic climate, deconstruction and rehabilitation of an existing structure can be more cost effective than building a new facility. So, increasingly structures are being developed that consider the whole-of-life cycle of a structure from design, construction, operation, maintenance, renovation and deconstruction.'

This project will investigate the behaviour of 'blind bolts' to connect structural steel beams to concrete slabs for use in both new construction and for where existing steel infrastructure is being rehabilitated. The use of blind bolts in new construction will enable buildings involving multiple dissimilar materials to be connected and will also facilitate the deconstruction of steel structures. The use of blind bolts will also mean easier remediation where steel members may be in jeopardy of fatigue failure in existing infrastructure.



This project will contribute to the field of structural health in the development of new design practices. The outcomes of this study will have immediate application in the assessment of high buildings and bridges. The research will also contribute to the competitiveness of Australian science and technology.

Project Title: The use of innovative anchors for the achievement of composite action for rehabilitating existing and deployment in demountable steel structures

Funding has been set at: \$255,000 over 3 years

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