

School of Architecture and Built Environment

Current and Recently Completed Research Projects (August 2017)

[Sustainable Built Environment](#)

[History, Theory and Culture of Architecture and the Built Environment and the Centre for Asia and Middle Eastern Architecture](#)

[Design Research Collective](#)

[China-Australia Sustainable Research](#)

[Healthy Cities](#)

Sustainable Built Environment

Current Projects

Urban Disruption: a scenario based analysis for the introduction of driverless vehicles (2017)

Researchers: [Prof Jon Kellett](#), [Prof Anton van den Hengel](#), [Dr Raul Barreto](#)

Funding: University of Adelaide Interdisciplinary research project

This research will test the possible results of the widespread adoption of DVs using the City of Adelaide as a test case.

Placemaking and tactical urbanism (2017-2019)

Researchers: [Prof Jon Kellett](#), [A/Prof Emma Baker](#), [A/Prof Julian Worrall](#), [Dr Elisa Palazzo](#), [Dr Melissa Nursey-Bray](#)

Funding: Myer Foundation

Partners: University of Melbourne, University of Queensland, Curtin University, University of Technology, Sydney.

This project will combine the teaching of theory and practice of “placemaking” (including tactical urbanism), aiming to create vibrant public spaces and ultimately, better cities.

Transformational suburban projects review (2017)

Researcher: [Prof Jon Kellett](#)

Partners: RMIT, University of Western Australia, Melbourne University

Funding: National Growth Areas Alliance

This project will identify strategic projects that have been transformational in growing outer suburbs in Australian cities.

Investigation of relationship between thermal comfort and frailty (Oct-Nov 2017)

Researchers: [A/Prof Veronica Soebarto](#), [A/Prof Stefano Schiavon](#), [Dr Hui Zhang](#), [Dr Shichao Liu](#) (CBE, UC Berkeley)

Funding: School of Architecture and Built Environment Research Support Scheme

This investigation will be conducted in the thermal comfort chamber at the Centre for Built Environment, University of California Berkeley. Participants will be college students as well as people aged 65 years and over. Both cohorts will be exposed to the same thermal conditions and their responses will be recorded. Thermal comfort survey questionnaire will be combined with a Frailty questionnaire and the results will be analysed to see if there is correlation between the frailty level and thermal comfort.

Planning and design of public spaces to support ageing well (2016-2017)

Researchers: [A/Prof Veronica Soebarto](#), [Prof Renuka Visvanathan](#), [Dr Helen Ruth-Barrie](#), [Dr Damith Ranasinghe](#), [Dr Anne Wilson](#), [Dr Lyrian Daniel](#), [Dr Beatriz Martins](#)

Funding: University of Adelaide Interdisciplinary Research Fund

This project brings together existing research strengths in built environment and design; social sciences, particularly geography and population; health, geriatric and gerontology; and mobile wireless sensing technologies, as a first step toward a long-term goal to establish a new interdisciplinary research group in ageing well, focused on assisting older people to remain independent for longer, with quality and preferably in their preferred environment. The research is a pilot study to develop and test an interdisciplinary methodology to investigate whether the planning and design of public spaces in Adelaide are appropriate and friendly for older people.

Investigation into the structural capacity of optical glass with application to sustainable façade design and building technology (2016-2017)

Researchers: [Prof Heike Ebendorff-Heidepriem](#), [Marina Aburas](#), [A/Prof Veronica Soebarto](#), [Dr Michael Griffith](#), [Dr. T. Zhao](#)

Funding: Interdisciplinary Research 2016-2017, The University of Adelaide

The aim of this project is to form an interdisciplinary grouping between researchers at the Schools of Architecture, Civil Engineering, Photonics and Physical Sciences. The motivation of this new grouping is the exploration of creative solutions to problems within the area of sustainable façade design using nanoparticle optical glass coatings, fabricated at the glass fabrication lab at the Institute for Photonics and Advanced Sensing (IPAS) at the University of Adelaide. The investigation into the design of electrochromatic4 façades as well as the harvesting of energy through this nanoparticle coating is the particular direction which this research aims to take. The funding would be used for the pilot study to generate proof of concept that nanoparticle coatings would be suitable for architectural as well as structural façade glass applications.

Jurlique's nature based solution prototype (2017-2018)

Researcher: [Dr Elisa Palazzo](#)

[Find out more](#)

Recently Completed Projects

Privatisation trends in residential infrastructure provision (2015)

Researchers: [Prof Jon Kellett](#), [Dr Raul Barreto](#), [Paul Leadbeter](#), [Dr Chee Cheong](#)

Funding: Interdisciplinary Research Fund and Faculty of Professions Interdisciplinary and Multidisciplinary Research Fund
This project identified examples of residential developments which display evidence of privatisation in infrastructure provision and investigated the costs and benefits of this approach to development. [Find out more](#)

Situational eLearning: a crowdsourcing approach to the definition and assessment of key practice-ready academic outcomes (2014-2016)

Researchers: A/Prof Sidney Newton; Prof George Zillante; Russell Lowe; Dr Mark Shelbourn; Dr Mary Hardie; Dr Sean Pickersgill; Dr Rameez Rameezdeen

Partners: The University of New South Wales, University of South Australia, and University of Western Sydney

Funding: OLT Grant

This project combined hyper-immersive virtual reality simulation (The Situation Engine) with adaptive eLearning (Smart Sparrow) to provide an open and scalable platform that will support key academic, industry and student stakeholders in the definition and assessment of practice-ready learning outcomes in architecture and building. [Find out more](#)

Urban Ecosystem Design Lab Projects – Exploring ecological responses to design initiatives in the urban realm

Researcher: [Dr Elisa Palazzo](#)

Cohabit the Port Adelaide River – IJUD (Interdisciplinary Joint Urban Design) 2017 <http://www.urbanecodesignlab.org/jud17/>

Urban Landscapes Regeneration in Northern Adelaide (2017) <http://www.urbanecodesignlab.org/una17/>

Augmented Reality for Future Urban Environment (2017) <http://www.urbanecodesignlab.org/avr01/>

Partager Le Port Du Rhin (2016) <http://www.urbanecodesignlab.org/jud16/>

Public Space, Cultural Complexity and Urban Regeneration in the Port Augusta CBD (2016) <http://www.urbanecodesignlab.org/pas15/>

The roles of agricultural biodiversity in the McLaren Vale landscape (2015-2016)

Researchers: [Dr Elisa Palazzo](#), [Dr Douglas Bardsley](#), Prof Randy Stringer

Funding: Department of Environment, Water and Natural Resources, Faculty of Professions ARC cat.1 support & Faculty of Professions Interdisciplinary and Multidisciplinary Research Fund, Council of Onkaparinga, World Heritage Bid consortium and McLaren Vale Grape and Wine Tourism Association

This project included three areas of research:

- Evaluation of bio-cultural diversity across an agrarian landscape: the example of the McLaren Vale
- Agrarian Landscapes, Cultural Identity and Rural Prosperity in South Australia
- Mapping shared values: a collaborative and holistic approach to the identification of eco-cultural diversity and heritage values for the World Heritage Listing of Mt Lofty Agrarian Landscapes

Find out more [Mt Lofty Ranges World Heritage Bid](#) [Technical Report](#)

Roseworthy township cost modelling

Researcher: [Prof Jon Kellett](#)

Report on cost model prepared by Council. Development of discounted cash flow model of developer's costs and income over the development period.

Seawater flooding Study Yorke Peninsula Council (2015)

Researcher: [Prof Jon Kellett](#)

Funding: Yorke Peninsula Council

This project investigated the seawater flooding vulnerability of the Yorke Peninsula. [Find out more](#)

Housing and Indigenous People with a disability: lived experiences of housing and community infrastructure (2014-2015)

Researchers: [Prof George Zillante](#), [Dr Elizabeth Grant](#), [Dr Amit Srivastava](#), Dr Selina Tually, Mr Alwin Chong,

Partners: Australian Institute of Building; Australian Institute of Building Surveyors; Zero Waste SA; Royal Institute of Chartered Surveyors; Hodgkison Architects; City of Campbelltown

Funding: Australian Housing and Urban Research Institute

In essence this project aims to demonstrate the lack of recognition and provision of facilities for aboriginal people with disabilities

[Find out more](#)

Scoping study for crime prevention through environmental design in South Australia (2014-2015)

Researchers: [A/Prof Veronica Soebarto](#), [A/Prof Susan Oakley](#), [Dr Jennifer Bonham](#), [Prof Paul Babie](#)

Funding: DVCR Interdisciplinary Research Fund, Faculty of Professions Interdisciplinary and Multidisciplinary Research Fund

This study is expected to demonstrate that an interdisciplinary approach is required to deal with the multi-dimensional problems in achieving a sustainable living environment while it is also providing an opportunity to examine whether Sociotechnical Studies can provide insights into whether and how particular interventions such as Crime Prevention Through Environmental Design works.

Feeling safe and comfortable in the urban environment (2013-2014)

Researchers: [A/Prof Veronica Soebarto](#), Dr Helen Bennetts, [A/Prof Susan Oakley](#), [Prof Paul Babie](#)

Funding: Interdisciplinary Research 2013, The University of Adelaide; Interdisciplinary and Multidisciplinary Research 2014, Faculty of The Professions

This pilot research project was undertaken by an inter-disciplinary team from social science (with an interest in urban geography), law (an interest in property and planning) and architecture (sustainability and the built environment) that explores the link between CPTED principles and people's feelings of safety and comfort in an urban precinct of Adelaide, South Australia. The research combines a micro-scale analysis of the built environment using GIS mapping and a series of interviews. [Find out more.](#)

History, Theory and Culture of Architecture and the Built Environment and Centre for Asia and Middle Eastern Architecture

Current Projects

Art, Religion, and Science: Arab-Islamic Perspectives in Australia (2016-2017)

Researcher: [Prof Samer Akkach](#)

Funding: Council for Australian-Arab Relations

Understanding the Arabic-Islamic Religion culture and history in Australia

Islam and the Ethos of Science in the Post-Copernican Period (2012-2017)

Researcher: [Prof Samer Akkach](#)

Funding: Australian Research Council

Understanding the history of Islamic culture, religion, and traditions

The Architecture of Australia's Muslim Pioneers (2014-2017)

Researchers: [A/Prof Peter Scriver](#), [Dr Katherine Bartsch](#), Dr Philip Jones & Dr Abdul Razak Sopian

Partners: University of Melbourne

Funding: Australian Research Council

Muslim cameleers played a vital role in the nineteenth-century exploration and settlement of Australia's vast, arid interior. This project aims to improve knowledge of this non-European migrant contribution to the settlement history and building of colonial Australia, which is poorly documented and widely misunderstood.

Making architectural identity: the architecture of John Andrews

Researchers: Prof Paul Walker, Prof Philip Goad, A/Prof Antony Moulis, [A/Prof Peter Scriver](#), A/Prof Mary-Lou Lobsinger, Dr Paolo Scrivano

Funding: Australian Research Council

Partners: University of Melbourne / University of Queensland / University of Toronto / University of Liverpool (Suzhou)

John Andrews is unique among Australian architects for having had major impact in both his homeland and in North America. His success in Canada and the US in large institutional and urban projects in the 1960s came before a series of key projects particularly in Canberra built his reputation in Australia. This project will examine Andrews' work, its contexts, influence, and consequences, for the first time from both North American and Australian perspectives. It will develop knowledge on the architecture of a poorly understood transitional period; develop insights into how claims are made on architecture in the construction of national identity; and lead to new understanding of the contemporary globalization of architecture.

Curriculum Design for Architecture Education in India (2016-ongoing)

Researchers: [A/Prof Peter Scriver](#), [Dr Amit Srivastava](#)

This project focusses on restructuring the curriculum for architecture education in Indian architectural institutions.

Recently Completed Projects

International Studio Project (2011-2016)

Researchers: [Dr Amit Srivastava](#), [A/Prof Julian Worrall](#)

Funding: Asia Bound (Ministry of Education); New Colombo Plan (Ministry of Foreign Affairs and Trade)

The objective of this educational project is to build awareness, knowledge, experience, and affiliation with the Asian hemisphere among students in SABE programs, by implementing in-country field-trips, study tours, and traveling studios. Funded from various sources, it has had a number of annual iterations since 2011, to countries including India, Indonesia, Nepal, South Korea, and Japan. The 2015 iteration was a traveling studio entitled "South Korea + Japan: Urban Transformations - Rural Revitalisations", and aimed to examine the polarized divergence between city and countryside in South Korea and Japan, through observation and survey of urban conditions in Seoul, followed by participation in the Echigo-Tsumari Art Triennale, a rural international art festival in Niigata prefecture in northern Japan. A project blog, exhibition and booklet disseminated the results of the studio.

Culture-led Rural Revitalisation as Place-making Catalyst - The Roles of Architecture and Cultural Tourism (2013-2015)

Researcher: [A/Prof Julian Worrall](#)

Funding: JSPS Grant-in-Aid for Scientific Research

The aim of this research project was to clarify and assess the role and impact of architecture in culture-led regional revitalisation initiatives in Japan, with the objective of contributing ideas from such approaches to the post-disaster reconstruction challenge of Tohoku. It sought to elucidate the potentials of architectural approaches to identifying and reshaping collectively-held definitions of place and its role in reviving declining communities, and from this develop concrete proposals incorporating this knowledge for specific communities in the disaster-affected areas of Tohoku after the 2011 earthquake and tsunami.

(This project, developed and partially advanced while the lead researcher was based at Waseda University in Tokyo, was suspended after he moved to University of Adelaide in 2014.)

Design Research Collective

Recently Completed Projects

Researcher: [Dr Urs Bette](#)

Thalia Graz

EAF extension

Unreasonable Creatures

Torrens footbridge

Researcher: [Tanya Court](#)

oRAH

Helmet

Mrs Robinson

Packing

Researcher: [Mirai Morita](#)

BMW

Adelaide House

Researcher: [Dr Julian Worrall](#)

Beach House

China-Australia Sustainable Research

Current Projects

Co-evolution and dynamic capabilities growth models of the Chinese international contracting business in complex environment (2014-2017)

Researchers: Prof Zhenyu Zhao, [Dr Jian Zuo](#); [Prof George Zillante](#)

Partners: North China Electric Power University, Beijing and UniSA

Funding: National Science Foundation of China (NSFC)

The international contracting industry has gained a rapid growth during the past decades. However, there are significant challenges associated with the international contracting market. This is because of the complex environment associated with the international contracting market. This project applies an ecology theory to analyse the co-evolution of Chinese contractors in the international market, and develops dynamic capabilities growth models accordingly.

Minimizing construction demolition waste (2016-2018)

Researchers: A/Prof Hongping Yuan, Prof Jiayuan Wang, [A/Prof Jian Zuo](#), Dr Xusheng Li, Dr Jing Zhang

Funding: National Natural Science Foundation of China

Construction and demolition waste presents a significant issue in the construction industry. This is due to significant environmental, social and economic impacts during the generation and management of construction and demolition waste. This project adopts the dynamic approach to investigate the complex interrelationships amongst various critical factors to the success of construction and demolition waste management.

Air quality control in China (2016-2021)

Researchers: A/Prof Yuan Wang, Dr Peihong Yin, A/Prof Guozhu Mao, Dr Lihe Cai, Dr Ling Tong, [A/Prof Jian Zuo](#),
Dr Rameez Rameezdeen

Funding: National Natural Science Foundation of China

Air pollution presents one of most significant environmental issues in China, especially in urban areas. With the emergence of mega cities, air quality in these areas has drawn wide concern. This study aims to provide a better understanding of inter-regional and sectoral linkages of air pollutants emissions and to identify key sectors that contribute to the transfer of embodied emissions in mega cities of China. To investigate the driving forces of air pollution in China, the changes in linkages amongst inter-industrial air pollutant emissions were analysed by hypothetical extraction method under the input-output framework.

Integrating renewable energy technology into building: achieving zero carbon buildings (2015-2020)

Researchers: Prof Bin Yu, Prof Guanyi Chen, A/Prof Zhihua Zhou, [A/Prof Jian Zuo](#), et al.

Funding: Ministry of Science and Technology

This study focusses on integrating renewable energy systems in building to ensure the carbon neutral development in China. The assessment involves both life cycle assessment and life cycle costing exercise.

Recently Completed Projects

The environmental dynamics and flexibility optimization of the wind power industry supply chain

Researchers: Prof Zhenyu Zhao, [Dr Jian Zuo](#), [Prof George Zillante](#)

Funding: Beijing Research Council of Philosophy and Social Science, Strategic planning Fund

This study researched the resilience of the wind power industry from the supply chain perspective.

The foreign expert invitation key project 2013 - study of co-evolution route for wind power industry chain

Researchers: Prof Zhenyu Zhao, [Prof George Zillante](#) and Dr Jian Zuo

Funding: State Administration of Foreign Experts Affairs (China)

This study researched the evolution of the wind power industry in a bid to achieve sustainable development.

The dynamic modelling and flexibility dynamics of the wind power industry

Researchers: Prof Zhenyu Zhao, [Dr Jian Zuo](#) and [Prof George Zillante](#)

Funding: Humanities and Social Sciences Project, Ministry of Education (China)

This research is on the dynamic relationship amongst various factors that contribute to the sustainable development of the wind power industry.

Healthy Cities

Current Projects

Impacts from mild-cold exposure in South Australian dwellings in winter (2017)

Researchers: [A/Prof Emma Baker](#), [Dr Lyrian Daniel](#)

Funding: School of Architecture and Built Environment Research Scheme

Supported by School of Architecture and Built Environment seed funding, this project uses traditional methods from architectural science research complemented by a rigorous investigation of interrelated socio-demographic, housing condition and economic factors to understand the impacts of cold housing on a sub-sample of households from the Australian Housing Conditions survey. Conversation piece: <https://theconversation.com/forget-heatwaves-our-cold-houses-are-much-more-likely-to-kill-us-83030>

The Australian Housing Conditions Data infrastructure (2016-2017)

Researchers: [A/Prof Emma Baker](#), [Prof Andrew Beer](#); [Prof George Zillante](#); Prof Kerry London; A/Prof Rebecca Bentley; Prof Kathleen Hulse; Prof Hal Pawson; Prof Bill Randolph; A/Prof Wendy Stone; A/Prof Priya Rajagopalan

Funding: Australian Research Council

The condition of Australia's housing has not been measured since 1999. In the nearly two decades since the last Australian Housing Survey there have been significant changes in the housing system. Responding to a vocal call from researchers and policy makers for a systematic, reliable and nationally representative dataset of housing conditions, this LIEF Project developed, collected, and will make available, an Australian Housing Conditions Data Infrastructure. Focused in the initial 2016 wave, on New South Wales, Victoria, and South Australia, this LIEF Data Infrastructure will provide a foundation of tools, data and protocols that Australian researchers and policy makers urgently need to deliver productivity, growth and a healthier population. [Find out more](#)

Improving the health and wellbeing of poorly housed Australians (2015-2019)

Researchers: [A/Prof Emma Baker](#)

Funding: Australian Research Council

This Future Fellowship seeks to recast the way that housing problems are conceptualised and addressed in Australia, to present new evidence about multiple housing problems, and provide robust quantitative and qualitative evidence on how multiple housing problems affect the health and wellbeing of key cohorts of vulnerable Australians.

Unaffordable housing: impacts on socio-economic conditions and wellbeing (2016-2020)

Researcher: A/Prof Rebecca Bentley

Funding: Australian Research Council

This Future Fellowship aims to examine how housing affordability affects wellbeing throughout life, not just at one point in time, and the flow-on effects of high housing costs on housing location, quality, security, and expenditure.

Recently Completed Projects

Pathways to health and wellbeing through housing

Researchers: [A/Prof Emma Baker](#), [Prof Andrew Beer](#); A/Prof Rebecca Bentley; Prof David Pevalin; Prof Christine Whitehead

Funding: Australian Research Council

This project sought to develop new methods for understanding the complex causal relationship between housing and health, and evidence of how housing can improve health and wellbeing.

Modelling housing need in Australia to 2025 (2015-2016)

Researchers: [A/Prof Emma Baker](#); A/Prof Steven Rowley; Prof Chris Leishman; [Dr Laurence Lester](#); A/Prof Rebecca Bentley

Partners: Curtin University and Heriot-Watt University (UK).

Funding: Australian Housing and Urban Research Institute (AHURI)

This research delivers, for the first time in Australia, a consistent and replicable methodology for housing needs assessment that can be used to inform resource allocation and model the impact of policy decisions on housing outcomes.

Report: <https://www.ahuri.edu.au/research/final-reports/287>

New directions in health inequalities research: Understanding the intersection between housing, employment and health in Australia

Researchers: [A/Prof Emma Baker](#); A/Prof Rebecca Bentley; Dr Shelley Mallett; Prof Anthony LaMontagne; [Prof Andrew Beer](#); Prof Anne Kavannah; Deborah Keys; Ms Violet Kolar

Partners: University of Melbourne; Melbourne City Mission; Hanover Welfare Services; VicHealth

Funding: Australian Research Council

In Australia, vulnerable populations are experiencing the brunt of the current global economic down turn. Melbourne City Mission and Hanover Welfare Services, who provide services to disadvantaged people, cannot treat housing, employment and health as independent concerns as they respond to the lived experience of their clients yet they operate in a policy and research environment that does so. This collaborative project between the University sector, VicHealth and aforementioned agencies aimed to investigate the pathways between precarious housing, employment and health and identify a set of appropriately timed and targeted intervention strategies along these pathways that are most likely to improve outcomes for vulnerable populations.

The importance of gender and socioeconomic disadvantage for the mental health of people living with disabilities

Researchers: [A/Prof Emma Baker](#); Prof Anne Kavannah; A/Prof Rebecca Bentley; Prof Anthony LaMontagne; [Prof Andrew Beer](#)

Funding: Australian Research Council

This project brought together two research fields: health inequities and disability research, to develop an evidence-base regarding how socio-economic disadvantage (with a focus on housing, employment and education) and gender shape the mental health of people with disabilities. Quantitative analyses of existing datasets and qualitative interviews with people with disabilities were used to develop the evidence base. The findings informed policy development, service delivery and future research for people with disabilities.

Housing assistance and the life course: understanding the impact of policy alternatives

Researchers: [A/Prof Emma Baker](#), Prof Anne Kavannah; A/Prof Rebecca Bentley; Prof Anthony LaMontagne; [Prof Andrew Beer](#)

Funding: Australian Research Council

This research examined the impact of the three major forms of housing assistance on low income and vulnerable people. In the research, low income private tenants, home owners and public tenants were interviewed to assess which form of housing assistance provides the greatest benefits for both recipients and society as a whole.