

# UAE Launch of the HANDBOOK FOR THE DESIGN OF MODULAR STRUCTURES



HANDBOOK  
FOR THE DESIGN OF  
MODULAR STRUCTURES



Date: **Wednesday, 7<sup>th</sup> March 2018**

Time: **3.00pm to 4.30pm**

Location: **Al Wasl & Al Marsa Meeting Room (Mezzanine Floor),  
Metropolitan Hotel Dubai**  
(Sheikh Zayed Road – Exit 41, Al Thanya Street, Dubai, UAE)

To register your interest, please email to  
[jacqueline.wong@monash.edu](mailto:jacqueline.wong@monash.edu) by 6<sup>th</sup> of March 2018.

You are invited to the UAE launch of the Handbook for the Design of Modular Structures. The development of the Handbook is pivotal to the advancement of the modular construction industry and this event is the first opportunity to learn about the Handbook in the UAE.

The event will provide attendees with insights into important elements of the Handbook and an opportunity to engage with Angus McFarlane, the Chair of the Handbook Committee, responsible for its development. **Please note that electronic copies of the Handbook will be provided to attendees.**

## The Handbook

The Handbook is a project by the Modular Construction Codes Board (MCCB) to provide guidance to the industry on the design and construction of modular structures. MCCB was founded by Prof. James Murray-Parkes and Prof. Yu Bai from Monash University in Melbourne, Australia with the supports from a number of industry partners and Victorian State Government. It was formed with the aim to provide a code of best practice and integrated solutions for modular construction to industry, government and the community.

The Handbook for the Design of Modular Structures is the first of its kind in the world. It has been developed with contributions from a number of industry partners and Monash University and the Victorian Government, Australia. Although the Handbook was developed in Australia, it should be noted that it is intended to be applicable to any jurisdiction because it derived using world's best practice, including Eurocodes and US standards.

The Handbook consolidates leading-edge knowledge of design and engineering advances, whilst integrating and enhancing the application of engineering principles to modular manufacturing and construction. The Handbook aims to enable improved safety, productivity and quality in industrial practices and integrated solutions that advance:

- Design for Manufacture and Assembly (DfMA);
- Advantages of Modular Construction;
- Regulatory compliance.

## DfMA & Modular Construction

DfMA has been used in the automotive and aerospace industries for many years and nowadays it has spread to many other industries. However, its uptake in the construction industry has been slow and often either sporadic or a partial solution, e.g., precast concrete elements, structural steelwork componentry, etc.

Nevertheless, an holistic approach using DfMA and modular construction is now gathering momentum. This process has been facilitated by the availability of high-performance, low-cost, computer hardware and software, which enable DfMA methodology to be efficiently implemented by project stakeholders.

## Disadvantages of Conventional Construction

The conventional construction process is often criticised for being inefficient, unsafe and environmentally unfriendly. Adverse impacts include: noise pollution; vibration, dust and air pollution; service disruptions; access problems; delays and traffic jams; and obstacles to safety and security.

Additionally, several attempts have been made to realise a change from the craftsmanship-based and labour-intensive processes in conventional construction towards sustainable construction practices, but these have tended to be piecemeal and ad-hoc. It is only by using DfMA that an holistic, efficient, time-saving and low-disturbance assembly process can be achieved on the construction site by utilising modular construction methodology.

## Speaker Profile:



### **Angus McFarlane**

***Structural Engineering Leader, Engineering Excellence Group, Laing O'Rourke, Sydney, Australia***

Angus is Structural Engineering Leader in Laing O'Rourke's Engineering Excellence Group. Laing O'Rourke is a multi-national contracting organisation with more than 15,000 staff worldwide. He is also the Fellow of the Institutions of Structural Engineers, Civil Engineers and Engineers Australia.

Angus is a passionate practitioner of modular construction utilising DfMA. He specialises in promoting the use of DfMA methodology in major construction projects, including buildings and large-scale civil engineering works. He utilises all leading international codes of practice and he has comprehensive experience in high-strength concrete; steelwork; seismic design; structural dynamics; soil-structure interaction; water-retaining and water-excluding structures; marine structures; bridges; highways structures; precast concrete; and forensic engineering.

Angus has presented throughout Europe, the Middle East and Australia. He was a member of the steering group for, and is a contributing author to, the Concrete Society's Guide to Design of Concrete Structures in the Arabian Peninsula, which was published in October 2008. His paper on the design of high-strength concrete columns was published by the Institution of Structural Engineers in March 2007.

Angus's projects include: Burj Khalifa – the world's tallest tower, Emirates Towers, Burj Al Arab, Dubai Festival City and Dubai Marina in Dubai, UAE; and ADNOC HQ office tower in Abu Dhabi. Angus lives with his family in Sydney and is currently working on several projects, including: high-rise buildings; renewable energy developments; and large-scale infrastructure, oil, gas and mineral resource projects.



### **Craig Moorfield**

***Head of Engineering, Multiplex Constructions LLC, Dubai, UAE***

Craig has been involved in the design and construction of high profile tall buildings, stadiums, and airports across Australia and the Middle East over the past 10 years and has lead the development of cutting edge construction analysis techniques for implementation on projects such as the Adelaide Oval Roof, One Central Park Heliostat, The Opus, and Abu Dhabi Midfield Terminal.

Craig is currently Head of Engineering for Multiplex in the Middle East and the local representative for Multiplex Engineering Innovations Group. In this role he leads a multidisciplinary team developing and implementing innovative construction techniques and alternate engineered methodologies to tackle the broad range of technical challenges faced across Multiplex's diverse portfolio of complex projects. He is passionate about new and novel methods of construction and is an advocate for the use of DfMA.

Craig participated in the discussions and workshops following the release of the Handbook for the Design of Modular Structures at the Council on Tall Buildings and Urban Habitat 2017 Conference at Sydney. He will be providing an introduction to the main presentation on behalf of Multiplex.