

High-Rise Buildings

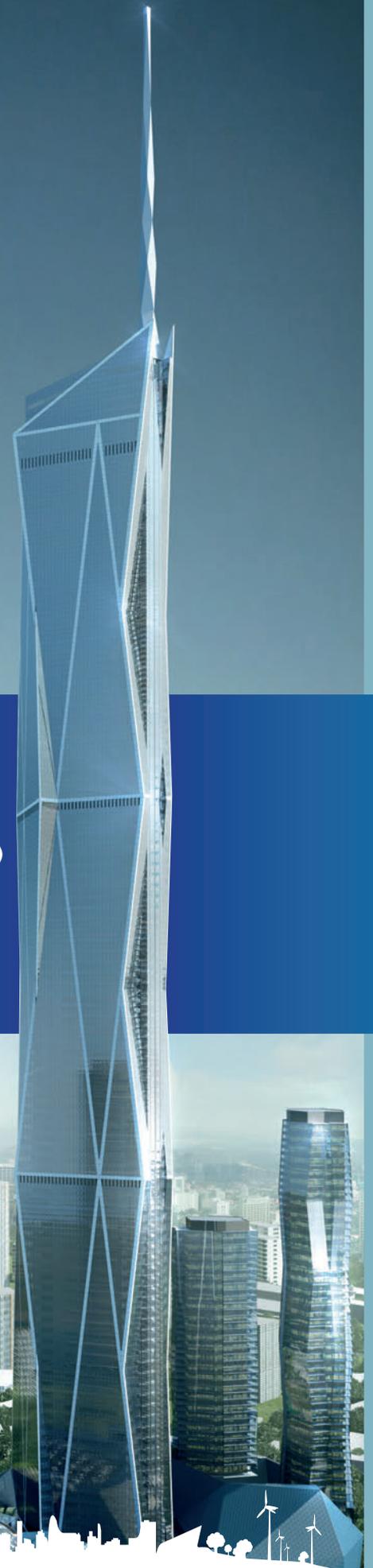
Efficient Design & Construction

23rd February 2019

9:00am - 1:00pm

What will be presented?

- Efficient High-Rise Design (Robert Bird Group)
- Facade Systems for High-Rise Buildings (Wintech)
- Digital Design & Future of Construction (Robert Bird Group)
- Discussion



What will be presented?

Session 1 - Efficient High-Rise Design

Presenters: **Giorgio Bianchi, Matheos Christoforou (Robert Bird Group)**

Case studies are used to explain structural and architectural drivers in achieving an efficient high rise tower design, and the role and influence that the structural engineer can have in delivering this value for the client and stakeholders, and in de-risking construction. Topics covered include:

- How to support the architect in configuring the core to improve floor plate areas, and efficiency
- Considerations in configuration of vertical structure to achieve layout efficiency (sales value) as well as structure efficiency (low cost);
- Structural stability systems to be considered, with pros and cons;
- Considerations for balconies, façade interfaces, swimming pools, etc
- Considerations for basements and podiums.
- Anticipating the method of construction, to positively influence the design

Session 2 - Façade Systems for High-Rise Buildings

Presenters: **Clyde Abela (Wintech)**

General overview of different façade construction methods, ranging from site-assembled component-based procurement to off-site prefabricated façades. The implications of each alternative approach will be considered, including access requirements, construction program, procurement routes, quality, performance characteristics, durability, maintenance requirements and implications on the architectural design.

The presentation will explore façade interfaces with the structure and provide a detailed look at options for incorporating balconies in façade design and implications of each approach.

Different solutions for addressing complexity in façade design will be discussed, ranging from optimization of architectural massing to reduce the number of unique components early on in the design process; down to methods for automating manufacture and fabrication of complex forms to reduce costs and design time."

Session 3 - Digital Design & Future of Construction

Presenters: **Simon Nicholas (Robert Bird Group)**

Technology and digital tools are transforming the way we design, what we design, and how it is built. Drawing on RBG recent experience, examples are presented to show how the industry has and is changing, and what we can each do to embrace these opportunities:

- Parametric Modelling as a tool - efficiency and beauty
- Automation of design enabling demonstratable optimized solutions
- Genetic algorithms, Artificial Intelligence, and topology optimisation tools enabling new design solutions
- BIM is more than a 3d coordination tool - it is for collaboration and information exchange
- Design for Manufacture and Assembly (DfMA). Modular and componentised construction!
- Virtual Reality, Augmented reality
- Virtual Design and Construction visualisation tools





Simon Nicholas
Robert Bird Group
Managing Director (Europe)



Giorgio Bianchi
Robert Bird Group
Director



Matheos Christoforou
Robert Bird Group
Senior Structural Engineer



Clyde Abela
Wintech
Director

Simon Nicholas Robert Bird Group
Managing Director (Europe) BEng (Hons) CEng MStructE

Simon is a chartered Structural Engineer and the Managing Director (Europe) of Robert Bird Group. He leads an office of 205 people based in London that providing Structural, Civil, Geotechnical, and Construction Engineering design consultancy services.

Simon remains involved in projects. His experience has focused on Residential, Hotels, and Commercial Office sectors, and includes the design of many tall towers, and project's with Design for Manufacture and Assembly (DfMA). His projects include Nova Victoria (15-storeys), Trafalgar Place, One The Elephant (37-storeys), Caprice Hotel (1200 bedrooms), Spire London (67-storeys), Vauxhall Sky Gardens (33-storeys), St Johns Wood Square, and The Broadway (20-storeys).

Design leadership is a passion of Simon's. Through effective design leadership and collaboration with Architects and other consultants, engineers are able to take a leading role in driving the success of projects, delivering value for the client and stakeholders, and de-risking the construction. "Engineering is about delivering an efficient holistic solution of value".

Matheos Christoforou Robert Bird Group
Senior Structural Engineer MEng (Hons) CEng MStructE EUR ING

Matheos is a chartered structural engineer with +9 years' experience in the structural and construction engineering industry. He completed his master's degree at University College London (UCL) in 2009 and was awarded the Institution of Structural Engineers Past Presidents' Prize for the best performance in engineering design at Masters Level and the Dean's List Award in recognition of his outstanding academic achievements in the Faculty of Engineering Science at UCL.

He started his career working as a structural engineer at Lardis D. & Partners in Cyprus and then moved to the UK where he worked for Mott MacDonald before joining Robert Bird Group (RBG) in 2017. Working in RBG, in the Construction Engineering Team in London, he closely collaborates with building developers and contractors to successfully deliver large construction projects and High-Rise buildings. Providing construction engineering services he was involved in many high-rise project in London including 22 Bishopsgate (62-storeys), 100 Bishopsgate (40-storeys) and Akon Tower (50-storeys). Currently he is working on Battersea Power Station Project leading the temporary stability assessment of the new multi-storey building within the existing Battersea Power Station.

Matheos is a chartered European engineer (EUR ING), a member of the Institution of Structural Engineers (MStructE) and a member of the Cyprus Scientific and Technical Chamber (ETEK) and the Cyprus Association of Civil Engineers.

Giorgio Bianchi Robert Bird Group
Director MSc, CEng, MStructE

Across his career, Giorgio has developed sound technical and managing experience taking part to several international projects and developing high analysis and technical skills.

Giorgio completed his bachelor and master degree at Polytechnic of Milan, Italy, where he also collaborated as part-time professor assistant in Structural Dynamics.

Following a working experience in the USA at Westinghouse Electric Company and 4 years in an engineering consultancy in Milan (BMS Progetti), Giorgio moved to London working as senior engineer for Pell Frischmann before joining Robert Bird Group in 2013.

In Robert Bird Group Giorgio have led several projects, from residential to commercial, with complex interactions with Third Party assets, such as Nova East and Place (22-storeys), Vauxhall Sky Garden (37-storeys), Cherry Park (32 and 42 storey) and the Helix (32-storeys). Giorgio is also leading the Modern Method of Construction research and development within the London office, with experience in modular and off-site fabrication.

Clyde Abela Wintech
Director MSc, BE&A, CEng, MSFE

Clyde Abela is a Director and Façade Engineer at Wintech Ltd, one of Europe's largest Façade Engineering Consultancies. Wintech Ltd has been involved on a number of projects in Cyprus including The Oval and Zaria in Limassol. Clyde supplemented his background as an Architect & Civil Engineer in Malta with an M.Sc. in Façade Engineering from the University of Bath. He is a Chartered Engineer and a member of the CIBSE Society of Façade Engineering and acts as a Lead Consultant at Wintech.

He has worked on and led several projects with particular focus on building physics, thermal comfort and compliance to statutory regulations. He has played an active part in several national and international high-rise projects including The Oval in Limassol with Atkins Architects, as well as a number of high-rise residential projects in London including Merano Residences with Rogers Stirk Harbour + Partners; Elephant Park with AHMM, Squires and Partners and dRMM; as well as Providence Wharf with SOM Architects.

Clyde has also assisted Rogers Stirk Harbour + Partners with the detailed development of the Central Buildings Redevelopment for the London School of Economics which is set to become one of the first multi-storey BREEAM Outstanding office blocks in the UK which relies solely on natural ventilation through automated vents within the façade. Clyde has also delivered presentations at a number of conferences, including the recent ZAK World of Facades Conference held in London in October 2018 as well as the CWCT Annual General Meeting also held in October 2018.