BUILDING ENVELOPES ASIA 2011

Optimising Building Performance through Iconic and Efficient Envelope Design, Engineering and Materials

Main conference: **27 - 28 April 2011** | Marina Bay Sands site visit: **26 April 2011**
Technical workshops: **29 April 2011** | Venue: **Carlton Hotel, Singapore**

ARE YOU A DEVELOPER?

Attend the conference for free as our VIP Guest.

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Leading Developers and Regulators Presenting

Datuk Ir. Hamzah Hasan,
Chief Executive Officer,
CIDB Malaysia

Nayan Raheja,
Director – Architecture & Construction,
RAHEJA DEVELOPERS

Deepak Mowar,
Vice President - Retail Developments,
PARSVNATH DEVELOPERS

David Foo,
Project Manager,
GUOCOLAND PROPERTIES

Featuring Over

- **27 presentations**
- **20 developers as VIP Guests**
- **14 case studies**
- **12 architectural firms**
- **8 façade engineering firms**
- **3 technical workshops**
- **1 site visit**

Top Architects Presenting

Marshall Strabala
Principal
2DEFINE ARCHITECTS

Chee Yung Kuan
Senior Vice President (Architecture)
CPG CONSULTANTS

James Law
Chief Cybertect and Chairman
JAMES LAW CYBERTECTURE

Ruchir Panwar
Principal Architect
STUP CONSULTANTS

David Gianotten
Partner
OMA

Stefan Krummeck
Director - Design
TFP FARRELLS

Robert-Jan Van Santen
Managing Co-Director
VAN SANTEN & ASSOCIATES

Serina Hijjas
Executive Director
HIJJAS KASTURI ASSOCIATES

The only envelope design and engineering event covering:

1. ROI analysis for developers: achieving efficient building envelopes
2. Trends in designing and engineering iconic building envelopes
3. Building performance enhancement through efficient envelopes
4. Marketability and maintainability of buildings with efficient envelopes
5. Trends in envelope systems, materials and fabrication/installation techniques

Register for three technical workshops:

- **A** Designing envelopes for tall and supertall buildings - addressing structural, efficiency and constructability challenges
- **B** How to develop and integrate high performance envelopes
- **C** Efficient maintenance, repair and retrofit of envelope systems

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PROGRAMME AT A GLANCE

Pre conference site visit - 26 April, 2011

0930 – 1230:
Design and engineering of building envelopes for Marina Bay Sands Integrated Resorts, Singapore
Led by **Russell Cole, Regional Director – Façade Engineering, ARUP**

Conference Day 1 - 27 April, 2011

The significance of envelopes in contributing to efficient building performance

0845-1710:
Developers, regulators, architects and engineers present thought leadership on achieving optimal building performance and iconic envelope design

Guocoland Properties
STUP Consultants
CIDB Malaysia
CPG Corporation
Raheja Developers
ROCCO Design Architects
Parsvnath Developers

1750: Cocktails and networking reception

Conference Day 2 - 28 April, 2011

Stream A:

0900-1710
Best practices in the design of high performance envelopes

Featuring **TFP Farrells, T R Hamzah & Yeang, Van Santen Associates, STUP Consultants, 2DEFINE Architects, OMA, James Law Cybertecture, CPG Corporation and Hijjas Kasturi Associates**

Stream B:

0900-1710
Trends in envelope engineering

Featuring **Arup, Mott MacDonald, Buro Happold, Meinhardt Yuanda, Aurecon, WSP**

Post conference workshops - 29 April 2011

Workshop A: 0830 – 1130
Designing envelopes for tall and supertall buildings - addressing structural, efficiency and constructability challenges
Marshall Strabala, Director - Design, **2DEFINE ARCHITECTS**

Workshop B: 12.00 – 15.00
How to develop and integrate high performance envelopes
Jonathan Sakula, Technical Director – Facades Group
BURO HAPPOLD FAÇADE ENGINEERING

Workshop C: 15.30 – 18.30
Efficient maintenance, repair and retrofit of envelope systems
Mathieu Meur, Director, **MEINHARDT FAÇADE TECHNOLOGY**

SNAPSHOT OF CONFIRMED DEVELOPERS ATTENDING AS VIP GUESTS

(This list is confirmed as of 15 Dec 2010)

- Guocoland
- MRCB
- Kumar Properties
- Glomac Properties
- Raheja Developers
- WingTai Asia
- Keppel Land
- Putrajaya Holdings
- UEM Land
- Mudajaya Developers
- IGB Corporation
- IJM Corporation
- Kalpataru India
- Parsvnath Developers
- Lumchang

Who will be speaking and attending?

You can look forward to meeting and forging contacts with key decision makers in the region's building industry including, leading developers, architects, façade engineers, regulators and materials and technology suppliers.

Typical attendees include:

Developers Head / Director / General Manager:

- Project Management
- Property Development
- Commercial Properties
- Retail Development
- Sustainable Development
- Building Performance
- Group General Manager / Managing Director

Architects

- Chief / Principal Architect
- Director – Architecture
- Senior Design Architect
- Sustainability Team Manager
- Head of Projects

Façade Engineering Firms

- Façade Consultant / Engineer
- Façade Team Leader
- Technical Director – Façade Engineering
- Heads of Building Group / Building Science Group / Building Engineering
- Sustainable Design Consultant
- Senior M & E Engineer

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Technical Director – Façade Engineering
WSP

Dr. Mirek Piechowski
Group Leader – Building Science & Technology
MEINHARDT

BUILDING ENVELOPES ASIA 2011

Dear building industry stakeholder,

Developers in Asia are seeking to incorporate iconic envelopes that are energy efficient. Not only do buildings with efficient envelopes have higher ROI, they are also profitable to operate and easier to maintain.

I am pleased to present you with the programme for the region's annual industry event **Building Envelopes Asia 2011**, which will provide a platform for leading developers, architects, façade engineers, regulators and materials and technology suppliers to discuss trends in design, engineering and materials of efficient building envelopes.

The event features key presentations including:

- **Integrating design and procurement for achieving high performance envelopes**
  Involving stakeholders from design, engineering and procurement functions through to commissioning of a building ensures cost effective and high performing envelopes, says **Nayan Raheja**, Director - Architecture & Construction, **Raheja Developers**, one of the leading developers from India.

- **Challenges in the design and construction of cladding systems for super tall buildings**
  Marshall Strabala, Design Partner, **2DEFINE Architects**, has designed three of the world's ten tallest buildings. He will discuss materials selection for cladding super tall buildings and methods to increase envelope performance - with Burj Khalifa and Shanghai Tower as case studies.

- **Engineering to facilitate access, maintainability and future retrofit of envelopes**
  Access, maintenance and ease of retrofit have always been challenges with building envelopes. I will be analysing these issues and presenting the latest trends in providing access for envelope repair, maintenance and retrofit from the outset.

With 30 presentations spread over three streams, three workshops and a site visit, you will find the event offering immense learning and networking opportunities.

I look forward to welcoming you at **Building Envelopes Asia 2011**.

Warm regards,

Mathieu Meur
Managing Director
Meinhardt Façade Technology (S) Pte Ltd

PLUS: BUILDING ENVELOPES CASE STUDIES

Are you a developer?

Please call us at **+65 6722 9388** or email **enquiry@iqpc.com.sg** for more details or to nominate your client for a VIP pass

Just a few of the envelope projects to be presented:

Burj Khalifa, UAE
The exterior cladding of the world's tallest tower is comprised of reflective glazing with aluminium and textured stainless steel spandrel panels and stainless steel vertical tubular fins. The cladding system is designed to withstand Dubai's extreme summer heat, to ensure its structural integrity.

The Solaris, Singapore
The Solaris is certified BCA GreenMark Platinum. The building's overall energy consumption represents a reduction of over 36% with a high performance façade. Envelope analysis has determined the shape and depth of the sunshade louvers, which also function as light-shelves.

Technosphere, UAE
The Technosphere has several key technology systems and architectural spaces enabling the building to generate a self breathing environment and generate electricity from solar power. This spherically shaped mixed-use development has distributed array of sky gardens for offices and the hotel which provides passive solar shielding.

CCTV Tower, China
The RMB 5 billion CCTV Tower is a mixed use development in Beijing with a total of 600,000 m2 space. The OMA designed iconic broadcasting tower has the cladding design by Front, US and structural services by Arup.

> "It was a very useful and eye-catching event with all the topics presented by the speakers. The event gave me a glimpse of where the architectural industry will move in the future."
>
> **Teh Kee Tian,** Business Development Manager, **Dow Corning**

> "Eye opener. Good update on latest built façades and future prospects."
>
> **Jose Pedro C Recio,** Façade Consultant, **Arlo Aluminium**

> "Façade Design & Engineering Asia was a highly interesting and educating seminar and thank you again for organising this successful event. Deeply appreciated."
>
> **Raymong Tsang,** Vice President, Design & Development, **CapitaLand Commercial Limited**

CONFERENCE DAY ONE

27 April 2011, Wednesday

BUILDING ENVELOPES ASIA 2011

The significance of envelopes in contributing to efficient building performance

0830 Registration & welcome coffee

0850 Opening remarks from the conference chair

0900 **How to integrate design and procurement methodologies to achieve an integrated design outcome for high performance envelopes and buildings**

- Challenges in converting the envelope design to engineering constructability
- Role of engineering and energy consulting in identifying ideal envelope material solutions
- Interface between design and procurement methodologies – where most envelopes fail
- How to ensure buy-in and coordination between designers and engineers

Nayan Raheja
Director – Architecture & Construction
RAHEJA DEVELOPERS

0940 **How to achieve cost effective envelopes and a better ROI for developers?**

- Detailing the inhibitions of a developer in having a high performance façade
- Listing the cost components of the façade in view of a developer
- Achieving cost optimisation under products and services utilised for a façade
- Enhancing the utility and saleability of a project with a good façade

David Foo
Project Manager
GUOCOLAND PROPERTIES

1020 Morning tea & networking break

1050 **Regulations, rating standards and improved stakeholder participation - keys to better building performance**

- Involving the industry in policy formulation
- Defining roles of individual stakeholders and industry associations in developing environment-friendly buildings
- Importance of quantifying energy produced and conserved by the envelopes
- Energy audit on building envelopes and its implications on stakeholders

Datuk Ir. Hamzah Hasan
Chief Executive Officer
CIDB MALAYSIA

1130 **How to enhance building performance with optimised people flow solutions**

- Focus on vertical transportation planning increasing rental revenue
- How selection of right VT technology will dramatically reduce energy costs
- Improving construction efficiency, money and time-wise with modern high speed JumpLift technology
- Case study - Marina Bay Sands

Johannes de Jong
Director Technology
KONE ELEVATORS AND ESCALATORS

1210 Lunch and networking break

1310 CASE STUDY **Designing envelopes for Green Mark rated commercial buildings: Solaris**

- Architectural challenges in integrating green roof and glass facades
- Envelope design of Solaris and resultant energy analysis
- Optimal use of resources in developing green envelopes
- Incorporating elements of natural ventilation and lighting

Chee Yung Kuan
Senior Vice President (Architecture)
CPG CONSULTANTS

1350 **Balancing aesthetics, cost and performance in high performance envelopes - a developer's perspective**

- Role of stakeholders in sustainable built environment
- Components of efficient building design and role of envelopes
- Importance of envelopes to achieve high performance buildings
- Issues in integrating aesthetics with initial high cost in developing envelopes

Deepak Mowar
Vice President – Retail Developments
PARSVNATH DEVELOPERS

1430 Afternoon tea & networking break

1500 CASE STUDY **Bio-mimicking of building envelopes: India Tower**

- Comparing human body and cell behaviour with buildings
- Achieving optimal performance by natural exchange of heat, light and air
- Advantages in developing building envelopes which bio-mimic
- Design solutions to improve bio-mimicry of buildings

Dr. Mirek Piechowski
Technical Director – Building Sciences
MEINHARDT

1540 **Living, breathing, thinking facades for the 21st century cybertecture: Technosphere**

- How the role of façades has evolved into the 21st Century living, breathing, thinking skins of buildings
- The design of façades that live and evolve with the changing modern life of a building
- Designing façades that breath: Contributing to the environment and sustainability of a building
- The design of façades that think for the people of the building to keep them safe, empowered and intelligent

James Law
Chief Cybertect and Chairman
JAMES LAW CYBERTECTURE

1620 Chair's summary with Q&A - end of plenary session

1630 Networking Cocktail Party

CONFERENCE DAY TWO

28 April 2011, Thursday

BUILDING ENVELOPES ASIA 2011

Stream A – Best practices in the design of high performance envelopes

0830 Registration & welcome coffee

0850 Opening remarks from the conference chair

0900 **Combining aesthetics and functionality in envelope design**
- Combining the architectural parameters in designing facades
- New trends in design factors for facades
- Identifying alternate materials for new skin facades

Stefan Krummeck
Director – Design, **TFP FARRELLS**

0940 **Innovations in the design and the engineering of envelopes for bio-climatic buildings**
- Bioclimatic buildings and design of high performance envelopes
- Considering multiplicity in integrating transparency, forms, edges and layers in envelope design
- Designing high performance envelopes in tropical conditions
- Rethinking the new paradigms for futuristic envelopes

Jan Rehders
Head - Sustainability, **T R HAMZAH & YEANG**

1020 Morning tea & networking break

1050 CASE STUDY **Designing high performance envelopes for iconic and thematic buildings: Bao 'An Cultural Complex**
- Key role of the building envelope in meeting Green Building rating schemes
- Analysis and assessment of enhancements to the façade fabric
- Examples of strategies suggested by regional regulators
- Planning for the sustainable future - role of building envelopes

William W L Tam
Director - Design, **ROCCO DESIGN ARCHITECTS**

1130 CASE STUDY **ETFE Texlon Climatic Envelopes – Changing the way we think about design solutions: Case studies Resorts World at Sentosa and The WaterCube, Beijing**
- ETFE – an alternative and efficient building material
- Current advances in ETFE technology
- Possibilities with ETFE - variable light transmission, controlling solar gain and ultraviolet rays
- Speciality coatings and printing and
- Colouring and patterning and full pixelated LED graphic display

Ben Morris
Managing Director, **Vector Foiltec**

1150 CASE STUDY **Challenges in the design and construction of cladding systems for super tall buildings: Burj Khalifa - 828m and the Shanghai Tower - 632m**
- Choice of façade materials: challenge and opportunity for cladding tall buildings
- Reflected light - properties of reflective glazing, textured steel spandrels and vertical steel tubular fins for cladding
- Improving envelope performance in tall towers
- Designing the envelope for the worlds tallest double skin building

Marshall Strabala
Principal, **2DEFINE ARCHITECTS**

1230 Lunch and networking break

1330 **Design of complex façades for tall buildings: CCTV Tower, Beijing**
- Challenges in designing complex façades for tall buildings
- Engineering for structural adequacy of CCTV tower's façades
- Ensuring sustainability in design, construction and maintenance of the façades
- Identifying suitable envelope materials for very tall buildings

David Gianotten
Partner
OMA

1410 **Climate envelopes for contemporary architecture**
- Developing zero energy building
- Building Integrated Solar (BIPV) systems
- Building Automation systems
- Life Cycle Management for efficient buildings

Dr. Ing. Werner Jager
Head of Technology
HYDRO BUILDING SYSTEMS

1450 Afternoon tea & networking break

1520 CASE STUDY **Efficient and green envelope design for buildings in tropical conditions: Bank Negara**
- Parameters in vented and unvented roof design
- Considerations in green roof design
- Integration issues faced while designing green roofs and high performance façades
- Designing for roof retrofitting

Serina Hijjas
Executive Director
HIJJAS KASTURI ASSOCIATES

1600 PANEL DISCUSSION **Envelopes as an energy producing component: integrating BIPV and other renewable sources**
- Growing trends of integrating BIPV and renewable energy sources onto envelopes
- Overcoming issues in connecting envelope energy sources to the building grid
- Possibilities in technology extension of BIPV integration – case studies
- How energy-independent can a building become?

Panellists:

Chee Yung Kuan
Senior Vice President (Architecture)
CPG CONSULTANTS

Nayan Raheja
Director – Architecture & Construction,
RAHEJA DEVELOPERS

David Foo
Project Manager
GUOCOLAND PROPERTIES

Ruchir Panwar
Principal Architect
STUP CONSULTANTS

1640 Chair's summary with Q&A

1650 End of conference

CONFERENCE DAY TWO

28 April 2011, Thursday

BUILDING ENVELOPES ASIA 2011

Stream B – Trends in envelope engineering

0830 Registration & welcome coffee

0850 Opening remarks from the conference chair

0900 **Developing and using tools for quantifying the impact of envelopes on building performance and operation**

- Existing tools in quantifying the impact of envelopes on building performance
- Issues in developing new tools in building performance analysis
- Communicating with the envelope engineering stakeholders on a common platform
- Environmental impact of ideally engineering envelopes

Russell Cole
Regional Leader – Façade Engineering
ARUP FAÇADE ENGINEERING

0940 **Value engineering of envelopes based on LCA**

- Use of 'cradle-to-grave' approach in envelope engineering
- Value engineering concept in measuring building performance
- Current trends in using life cycle assessment tools
- The road ahead in envelope engineering

Clive Atkinson
Technical Director - Façade Engineering
MOTT MACDONALD

1020 Morning tea & networking break

1050 **Quantifying energy-embodiment of envelope materials: impact of recycled materials and alternative composites on envelope construction**

- Where does the sustainability calculation start for a sustainable building?
- Moving towards holistic approach in achieving higher building performance
- Embodied energy of envelope materials with reference to rating standard certification
- Use of recycled and alternative materials in envelope construction

John Perry
Managing Director
YUANDA

1130 **Standardising envelope components for complex geometries in high performance facades**

- Rationalisation of geometry
- Fabrication and installation tolerances
- How high performance is achieved

Jonathan Sakula
Technical Director – Facades Group
BURO HAPPOLD FAÇADE ENGINEERING

1210 Lunch and networking break

1310 CASE STUDY **Facades beyond curtain walls: Resorts World at Sentosa**

- Challenges in developing envelopes for Resorts World at Sentosa
- How access and maintainability issues in envelopes were overcome in envelope engineering?
- New trends in engineering facades with a view for future retrofitting

Mathieu Meur
Managing Director – Façade Engineering
MEINHARDT FAÇADE TECHNOLOGY

1350 CASE STUDY **Architectural engineering of complex façades for iconic buildings: case studies from recent European projects**

- Engineering complex shapes with part double skin: CMA-CGM Tower, Marseilles
- Design and engineering of very large curved glass façade with 'breathing' technology: Hotel Renaissance Arc de Triomphe, Paris
- Retrofitting a land mark structure with high performance double skin façade: Tour CCK, Luxembourg

Robert-Jan Van Santen
Managing Co-Director, **VAN SANTEN & ASSOCIATES**

1430 CASE STUDY **ETFE Texlon Climatic Envelopes – Successful Collaboration for the total life cycle of a sustainability project: Case Study - Khan Shatyr, Kazakhstan**

- ETFE – an alternative and efficient building material
- Current advances in ETFE technology
- Possibilities with ETFE - variable light transmission, controlling solar gain and ultraviolet rays
- Speciality coatings and printing and specialist lighting effects
- Colouring and patterning and full pixelated LED graphic display

Ben Morris
Managing Director, **Vector Foiltec**

1450 Afternoon tea & networking break

1520 **Incorporating energy efficiency in envelope design process: Hyderabad International Airport Terminal**

- Environmentally sustainable envelope design in India
- Enhancing building performance and sustainability through combining steelwork and double skin facades
- Calculating the efficiency of geometric double skinned fabric wall for minimising heat load gain
- Ventilating the building structure naturally with the facades

Ruchir Panwar
Principal Architect, **STUP CONSULTANTS**

1600 **Enhancing efficiency in envelope fabrication and installation procedures for very tall towers**

- Listing out the challenges encountered by the façade industry owing to lack of skills in fabrication
- Emphasising the benefits of skilled façade fabrication and installation
- Coordinating with architects and façade consultants in a better way for optimal performance
- Learning from best practices in façade fabrication and installation

Lucia Lung
Leader – Façade Engineering, **AURECON**

1640 Chair's summary with Q&A

1650 End of conference

What is Building Envelopes Asia about?

Efficient buildings are characterised by high performance envelopes which provide better ROI, higher sales value, increased occupant comfort and better maintainability.

Building Envelopes Asia, which incorporates the successful **Façade Design & Engineering Asia** conferences, is the only regional summit examining trends in developing efficient envelopes. Developers, architects, façade engineers, regulators and material and technology suppliers will to discuss the evolution of design/engineering techniques for complex envelopes, seeking to maximise building performance and minimise carbon footprints.

Building Envelopes Asia 2011 will examine:

- ROI and cost-benefit analyses for developers/builders
- Techniques in combining aesthetics, function and form in complex façade geometries
- Latest techniques in commercial evaluation of building performance
- Best practices in improving stakeholder coordination
- The impact of regional regulations and rating standards on building envelopes
- Current trends in façade design and engineering including dynamic façades
- Efficient integration of new materials in building envelopes

The following technologies, increasingly preferred by stakeholders will be examined:

- Design and engineering of automated façades
- Integration of renewable energy components onto envelopes
- Installation of BIPV
- Green vertical cladding and roofing systems
- Energy efficiency and natural ventilation of skylights and roof windows
- Design and construction of domes and other roofing structures

Enriched by years of research and close industry alignment, **Building Envelopes Asia** will provide an ideal platform for developers to understand global best practices, helping them develop more sustainable and efficient buildings.

PRE-CONFERENCE SITE VISIT

26 April 2011, Tuesday

0900 - 1230

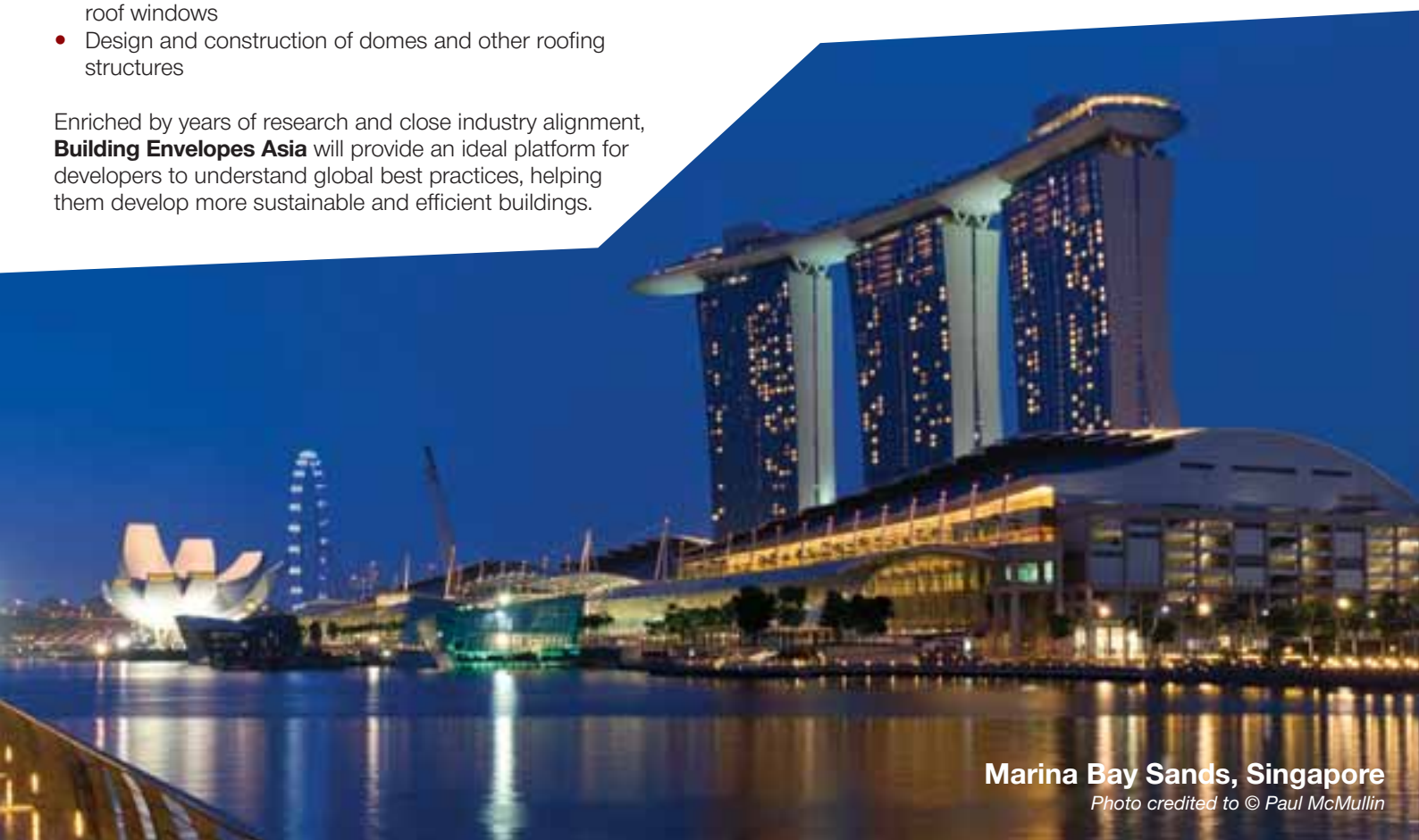
Design and engineering of building envelopes for Marina Bay Sands Integrated Resorts, Singapore

Led by **Russell Cole**, Building Group Leader, **ARUP**

Marina Bay Sands Integrated Resorts, a complex mixed use development is a mix of iconic buildings - hotels, exhibition spaces, casinos, retail space and a museum which is still under construction. The architectural design and the associated façades pull the assembly into a whole and create a dramatic addition to Singapore's skyline.

The site visit will provide an insight into how the different types of envelopes are designed and engineered, what issues arose and how they were addressed, and how various parameters such as energy efficiency, commonality between systems, speed of construction and integration were addressed.

Mr. Cole has a background in façade and structural engineering and specialises in the design, assessment and construction of all types of façade systems for a broad range of buildings. He also has a strong interest in building physics and its application in hot climates. Projects cover a wide range from conceptual design and building physics studies, to providing sub-contractor's details. Investigations and resolution of failing façades is also a large part of his work. Lightweight structural systems and curtain wall systems are other strengths.



Marina Bay Sands, Singapore

Photo credited to © Paul McMullin

POST CONFERENCE WORKSHOPS

29 April 2011, Friday

BUILDING ENVELOPES ASIA 2011

Workshop A: 0830 - 1130

Designing envelopes for tall and supertall buildings - addressing structural, efficiency and constructability challenges

With the increasing demand for real estate space in Asian cities, tall and super tall building are preferred by developers for their better footprint-GFA ratio. Special design and engineering requirements characterise these buildings as is the case with envelopes.

Combining iconic and complex envelope geometries such as twisted double skin cladding are used in few of the world's super tall buildings; a very difficult design to achieve.

Key learning:

- Combining form and function in envelope design for tall buildings
- Addressing challenges of energy efficiency, structural stability and cost optimisation
- Material selection, fabrication methodology and constructability in super tall buildings

Workshop led by:
Marshall Strabala,
Principal,
2DEFINE ARCHITECTS

Marshall Strabala has more than 25 years experience in large-scale complicated projects. After 19 years as the Associate partner in charge of Design with Skidmore Owings & Merrill in Chicago, and 4 years as the Director of Design at Gensler, he founded 2Define Architecture in 2010. He is well known for his design work in performing arts, convention centers, and supertall buildings. He has designed three of the world's ten tallest buildings including Burj Khalifa in Dubai, the Shanghai Tower and Nanjing Greenland Financial Center in China.

For his creative and innovative designs, he has been honoured with several of the highest national and international awards in the field of architecture. This includes two AIA Honor Awards, the Burnham Prize from the Chicago Architecture Club, and two ASHRAE Excellence in Engineering Awards, and is a fellow of the American Academy in Rome. In total, he has designed more than 50 world-renowned projects in North America, Korea, China, Europe, and the Middle East totaling more than 2,500,000m^2.

Workshop B: 1200 - 1500

How to develop and integrate high performance envelopes

Designing and installing a durable and robust yet economical high performance façade is the desire of any façade industry stakeholder. Beyond architectural inputs, coordination between architects, façade consultants, quantity surveyors and most importantly, M&E engineers drives the specification of high performance in facades. However to achieve the desired performance procurement and implementation must be carefully controlled. This workshop outlines the key stages in determining the most appropriate performance of the façade, and then how to procure it and monitor its implementation.

Key learning:

- Coordinating with M&E engineers, architects and other consultants to determine façade performance
- Developing documentation and procurement strategies to best position for a good outcome
- Methods and approaches to protect the value of investment in the façade elements

Workshop led by:
Jonathan Sakula
Technical Director – Facades Group
BURO HAPPOLD FAÇADE ENGINEERING

Jonathan spent the first part of his career with Arup, initially on structural engineering and then multi-disciplinary design. In 1992 he helped form Arup Facade Engineering, where he led the New Parliamentary Building project. Then at Dewhurst Macfarlane and Partners, he led a number of projects involving glass worldwide, including the iconic hanging glass walls of the Kimmel Centre in Philadelphia. In 2001 he joined Yolles in London as a director, working on a variety of facade and glass projects, including forensic work to existing buildings, and blast resistant design. He joined Buro Happold in 2010 as Technical Director of the facades group.

Workshop C: 1530 - 1830

Efficient maintenance, repair and retrofit of envelope systems

Maintaining, repairing and retrofitting of existing buildings is growing as more building owners look to cut down life cycle operational costs of a building. But unique challenges are faced by façade engineers and consultants in retrofitting the envelopes for existing buildings, such as selection of material, fabrication technology, access to structure etc. In addition, stakeholders are also concerned with the optimisation of cost, material and manpower in performing maintenance and repair of building envelopes.

Key learning:

- Modern trends in maintenance and repair of envelopes
- How to provide safe access while retrofitting envelopes
- Ideal material and fabrication process selection for retrofit
- Cost and regulatory concerns in maintenance, repair and retrofit of envelopes

Workshop led by:
Mathieu Meur,
Managing Director,
MEINHARDT FAÇADE TECHNOLOGY

Mr. Meur, through his training as a multi-disciplinary engineer, has developed a broad spectrum of expertise in fields as diverse as structural engineering, material sciences, fluid mechanics, thermodynamics, acoustics and optics. He has worked on numerous major construction projects including The Reflections, The Dubai Mall, Mapletree Business City, Changi Airport Terminal 1 and Resorts World at Sentosa. At MFT, he provides façade engineering advice on design, repair and maintenance of external building envelopes such as curtain walls, claddings and skylights and has extensive knowledge of local and regional regulations and codes of practice.

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Dedicated to People Flow™

KONE is one of the leading global elevator and escalator companies, based in Finland, and currently has operations around the world in more than 50 countries with a total workforce of almost 34,000. The company has been committed to understanding the needs of its customers for the past century, providing industry-leading elevators, escalators and automatic building doors as well as innovative solutions for modernization and maintenance. KONE's objective is to offer the best people flow experience by developing and delivering solutions that enable people to move smoothly, safely, comfortably without queuing or waiting in-between.

KONE solutions can be found in many prominent buildings around the world: Pacific Place in Hong Kong, Beijing-Shanghai Express Railway and Shanghai International Financial Center in China, Palais Royale in India, Capital Square in Malaysia, the first JW Marriot in Vietnam, The River in Thailand and the Marina Bay Sands™ Integrated Resort in Singapore.

Sponsors:

Yuanda Group is a large international enterprise group mainly engaging in the manufacture of curtain walls, integrated windows and doors, elevators, mechanical and electrical equipment, wind power generation engineering and environmental engineering. As the biggest dealer of curtain walls in the world, Yuanda has been ranked at the top of the industry for nine consecutive years and its output and sales have been ranked No. 1 in the world for five consecutive years.

Jotun Powder Coatings is one of the world's leading powder coatings manufacturers, producing decorative and protective powder coatings for a wide range of applications. Our architectural product range proudly protects world famous landmarks such as the Burj Khalifa, and offer an environmental friendly option to liquid systems.

Vector foiltec is a global firm of designers, manufacturers and installers of Texlon ® Climatic Envelopes made from (ETFE). Vector Foiltec invented the technology over 30 years ago and have designed and constructed some of the most creative and sustainable projects in the world including the Beijing National Aquatic Centre (Water Cube), the world's largest climatic envelope at Khan Shatyr Kazakhstan, Resorts World at Sentosa, The Eden Project and most recently the National Stadium in Singapore.

Vector foiltec is the largest and only specialist ETFE Company in the world with production facilities in Europe and China.

With 50 years experience in the building products industry, **Technal®** is one of Europe's market leaders in the design, manufacture and distribution of aluminium facades, doors and windows who is working with leading industry specialists and associations to continually improve the recyclability of aluminium and to reduce carbon emissions during the life cycle of its products.

Technal® offers a range of innovative Geode curtain walling, thermally broken Soleal window and door developed to meet specifiers' requirements for enhanced thermal performance, design flexibility with visual appeal and proposes solar protection solutions such as Suneal sunshade, Noteal shutter and Safetyline louver system, enabling the control of solar gain and providing natural ventilation. These solutions enable thus reducing air conditioning consumption and improving air quality for user's comfort.

Forerunner of the inclusion of solar factor and light transmission in window and façade concepts, Technal® continues its approach with the integration of photovoltaic systems in its products enabling electricity production.

Permasteelisa Group is a worldwide leading Contractor in engineering, project management, manufacturing & installation of architectural envelopes and interior systems which brings its expertise to all its projects, in particular when dealing with Special Features Buildings, with offices in Singapore, Australia, Malaysia, Thailand, China (including

Our Exhibitors:

TÜV SÜD PSB Pte Ltd is a one-stop integrated solution provider offering testing, inspection, product certification and management system certification services in ASEAN. TÜV SÜD PSB is fully owned by TÜV SÜD AG - a leading global provider of technical services, helping its clients improve quality, safety, reliability while ensuring environmental protection and cost effectiveness, headquartered in Munich, Germany with over 140 years of experience.

Hunter Douglas is the world market leader in window coverings and a major manufacturer of architectural products. Hunter Douglas has its Head Office in Rotterdam, The Netherlands, and a Management Office in Lucerne, Switzerland. The Group is comprised of 162 companies with 67 manufacturing and 95 assembly operations and marketing organizations in more than 100 countries. Hunter Douglas employs about 17,000 people.

Hunter Douglas Singapore has had a presence in the Singapore market for over 45 years. Incorporated on 25th March 1965, it is a wholly owned subsidiary of the Hunter Douglas Group. A professional marketing and project team has been serving architects, designers and builders with a broad range of proprietary metal Awning, Ceiling, Cladding, Façade and Sun Louvre Systems under the brandname Luxalon®. It also markets a range of window covering products.

SANYO is leading the way in research and development as a pioneer in the field of photovoltaic power generations. SANYO's solar technology is making an important contribution to improve living standard in an environmentally-friendly way and it is leading us into a bright future. "HIT" is a trademark of SANYO Electric Co., Ltd. The name "HIT" comes from "Heterojunction with intrinsic Thin-layer" which is an original technology of SANYO Electric Co., Ltd. This product provides industry-leading performance and value using state-of-the-art manufacturing techniques.

Momentive offers a broad portfolio of GE-branded commercial sealants, adhesives and coatings for a range of commercial construction applications from weathersealing and structural glazing to insulating glass, fenestration and specialty applications. Across the globe, in new and remedial projects, GE construction sealants have been used on commercial buildings from the Shanghai World Financial Center and Lotus Temple to the Empire State Building and Chicago Institute of Art. For more information visit **www.ge.com/silicones**

ALUMCO is a specialized Aluminium Façade Contractor, whose expertise lies in the custom design of unitized curtain wall amongst other types of façade systems. Alumco offer their services to Developers, Architects, Consultants and Contractors from concept through to completion. Alumco is a market leader in the Aluminium Façade Industry in the UAE and has expanded in to Saudi Arabia, Kuwait, Qatar, Oman, Syria, Egypt, Algeria, Libya, United Kingdom and Asia.

Our Documentation Pack Sponsor:

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With a staff of 5,000, and 12,000 partners in more than 75 countries, Schueco provides a broad product portfolio with standardized as well as customized system solutions utilizing top quality materials which meet the highest standards of energy efficiency, reliability, convenience and design – from state-of-the-art window and façade technology, all the way to efficient and sustainable solar solutions.

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