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ON THE COVER Green-roofed Farming Kindergarten in Dongnai, Vietnam **ARCHITECTURE** Singapore Changi Airport Terminal 4; Terminal 2 at Chhatrapati Shivaji International Airport in Mumbai; and Mexico City New International Airport **Interior** House of Memories at Holland Grove Terrace & Chiltern House in Singapore **LANDSCAPING** Green roof projects: Setia Corporate Headquarters; The Interlace by OMA/Ole Scheeren; House For Trees; Villa Ronde; Marcel Sembat High School & Victorian Desalination Plant **PLUS** Interview with Wolfgang Ansel, Director, International Green Roof Association (IGRA)

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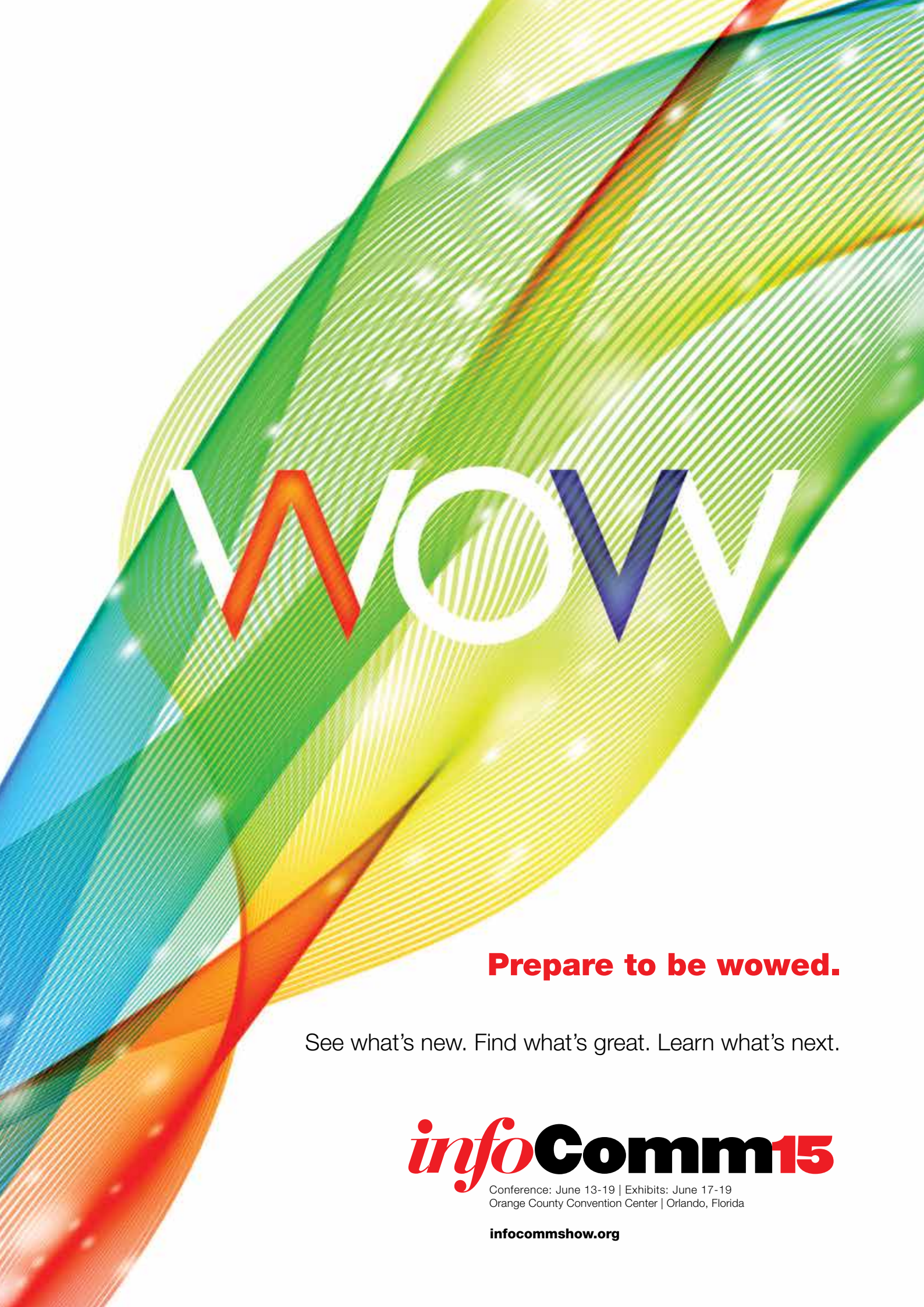

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On the Cover: Green-roofed Farming Kindergarten in Dongnai, Vietnam.
Photograph: Hiroyuki Oki and Gremsy

Cover design by Fawzeeah Yamin

GCC Sliding And Stacking Wall System

GCC Sliding And Folding Wall System

The three core principles of **GCC** are to provide **good quality, creditable and consideration products and services** to our customers since its establishment.

GCC has dedicated huge efforts in glass hardware and system development since 1981. **GCC** also provides variety of great solutions for users to create wide, fresh, and comfortable spaces. The product range cover from houses, office buildings, restaurants, hotels to department stores, etc.

Space planning is always a key point that designers and users focus on. To better serve user's expectation and the market trend, **GCC** launches "**Heavy Duty Sliding And Stacking Wall System**" and "**Sliding And Folding Wall System**". There are two major features of these two creative systems. First of all, it does not require to drill through glass and no need to use AB glue on glass. These two features offer more convenient operability to users and significantly cut down the installation time. Moreover, it does not require floor guide anymore, and it keeps the floor flawlessly from washing and dust and maintains simple and neat partition system. In addition, **GCC** offers anti-UV PVC seal, weather resisted rubber seal and weather brush to keep mosquitoes and insects away. All these options allows customer to flexible apply **GCC**'s products in different conditions.

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Looking forward, **GCC** will continue to devote its effort in developing more user-friendly systems to offer more effortless solutions, and most importantly to provide better living experiences to users.

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editor's note

Hello readers and welcome to the March/April 2015 issue! By the time you receive this issue, 2015 will be one month old already. Time really flies, doesn't it, especially when you are busy. Well, we are excited to introduce to you the second issue of 2015.

As you can see from the cover of the magazine, this issue delves into green roofs. From Europe to Asia, green roofs have become a popular element for integrating sustainability into architecture and they encompass a wide range of social, economic and environmental benefits. In the Landscaping section, you will find green roof design and installation at different locations, from a high school in France to a villa in Japan. Hope you enjoy the fabulous pictures of green roofs that we have published.

In addition, we have sourced for stories on new airports which will redefine the way passengers fly around the world. There are also two projects on residential interior design where you may find some inspiration to design your own home!

Moving forward, we have a digital version of the magazine now and you can look at a digital sample here: **http://issuu.com/southeastasiabuilding**

And if you wish to download the PDF version of the magazine, you can do so from **http://goo.gl/7HaaA8**

Enjoy reading & here's wishing all our readers a great Year of the Goat!

Amita Natverlal

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Jewel Changi Airport breaks ground

Singapore – Jewel Changi Airport Trustee, a joint venture by Changi Airport Group and CapitaMalls Asia, the shopping mall business of CapitaLand broke ground for the construction of Jewel Changi Airport (Jewel), a new mixed-use development featuring attractions, retail offerings, a hotel and facilities for airport operations, on 5 December 2014. Jewel will be built in front of Terminal 1 (T1).

At the groundbreaking ceremony graced by Minister for Transport, Mr Lui Tuck Yew, guests were given a first glimpse of Jewel's unique architecture and design, as well as its exciting myriad of lifestyle offerings. The ceremony also marked the commencement of expansion works for T1, which will be carried out alongside the construction of the Jewel complex. The redevelopment of the 3.5 hectare site at T1, formerly an open-air car park, allows Changi Airport to expand the terminal's footprint, thus increasing T1's passenger handling capacity to 24 million passengers per annum.

Designed by a consortium of consultants comprising Safdie Architects led by world renowned architect Moshe Safdie, as well as Benoy and local architects RSP, Jewel features a visually stunning façade comprising of glass and steel. Beneath its façade, Jewel will be the first in Singapore to seamlessly integrate a refreshing environment of lush greenery amid other attractions and facilities within the same building. The building will have five storeys above ground and five basement storeys, covering a total gross floor area of about 134,000 square metres. It is expected to complete by the end of 2018.

Aerial view of Jewel Changi Airport. The airport will be connected to Terminals 1, 2 and 3 and the MRT station via pedestrian bridges. Photo: © Jewel Changi Airport Devt.

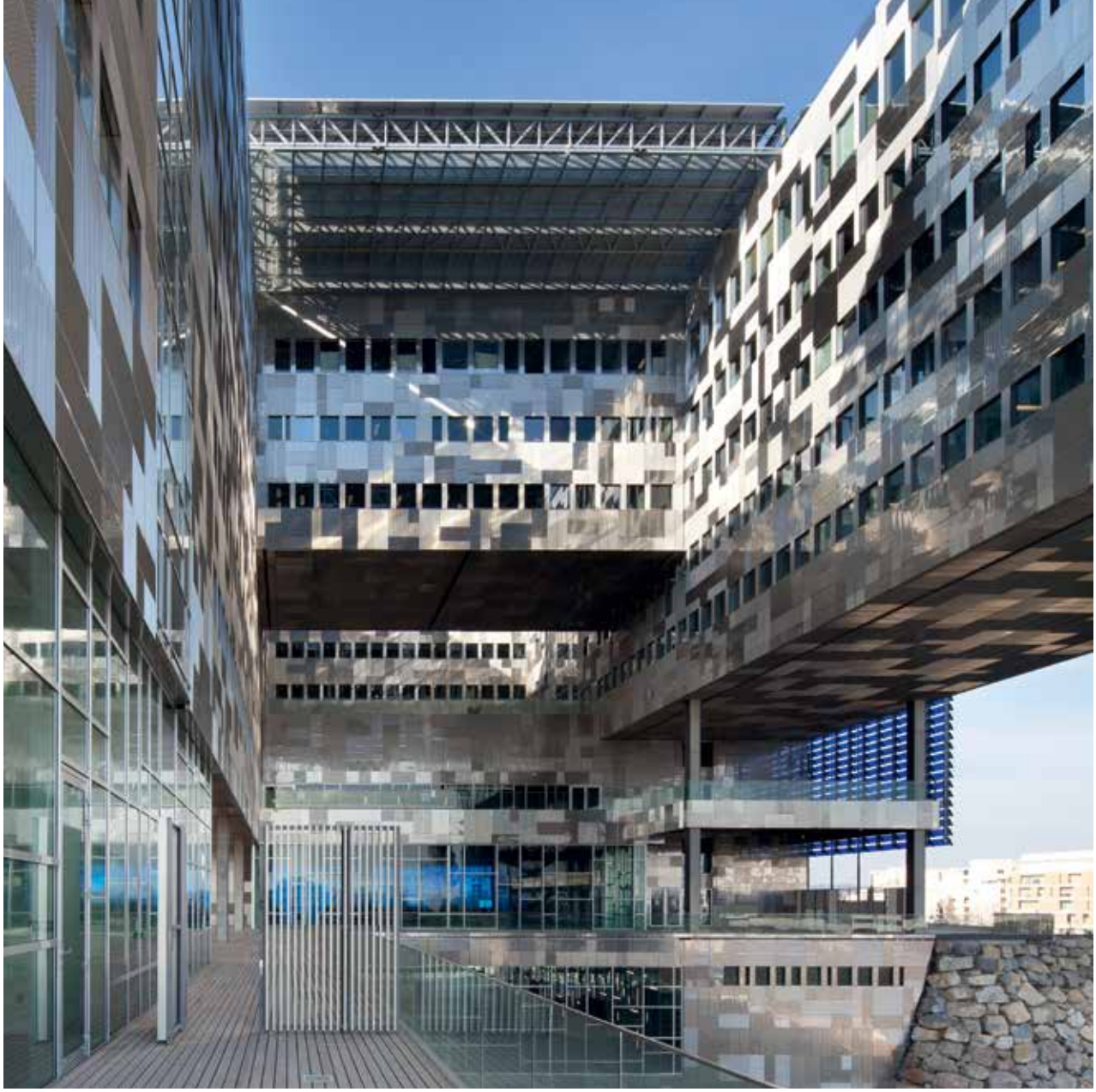
Jewel will boast several unique features such as the *Forest Valley*, a huge five-storey garden filled with thousands of trees, plants, ferns and shrubs. Visitors can immerse themselves in the beauty of nature within this idyllic valley of verdant landscaping and waterfalls, and can even take a hike up the valley in air-conditioned comfort. About 22,000 square metres of space will be dedicated to landscaping throughout the complex.

The other centrepiece of Jewel will be the breathtaking 40-metre high *Rain Vortex*, expected to be the world's tallest indoor waterfall. Located at the central core of the complex, this majestic spectacle will captivate visitors with its magnificent water display. At night, the *Rain Vortex* will transform into an enchanting Light and Sound show with special lighting effects.

The top level of Jewel will feature park space of approximately 13,000 square metres in size, comprising gardens, walking trails, playgrounds and dining outlets. *Canopy Park*, with engaging and fun play facilities, is designed to be a wonderland for both the young and old. In the surrounding area, there will be food and beverage outlets where visitors will be able to enjoy al fresco-like dining while admiring views of the *Forest Valley*.

In addition, there will be a wide range of retail offerings including local and international brands. The integration of world-class retail brands and unique dining concepts with indoor gardens and leisure attractions will provide visitors with a myriad of experiences all under one roof – making Jewel a one-of-a-kind lifestyle destination for both local residents and tourists.

The Rain Vortex at 40-metres tall, is expected to be the world's tallest indoor waterfall. Photo: © Jewel Changi Airport Devt.



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Technal & Jean Nouvel and François Fontès

The new city hall of Montpellier in France has been designed to be a flagship eco-friendly building. 13,000 sqm of solar panels, moveable louvres, and **clever aluminium building solutions such as SOLEAL window** profile range, have been selected here. This system enables to get **outstanding results,** especially in terms of superlative standards of thermal and acoustic insulation - achieving **significant energy savings and maximum comfort for users**. Our philosophy of working is always in **close collaboration with leading prestigious architects and also new emerging talents**; means we develop technically and aesthetically **advanced design solutions** for all our clients and which today can be seen in **over 90 countries** around the world.

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Diamond Energy officially opens Demand Response Centre in Singapore

Singapore – Diamond Energy has opened its next generation Demand Response Centre, the first dedicated facility of its kind actively serving electricity consumers in the National Electricity Market of Singapore.

Demand Response globally is already playing a pivotal role in conserving energy use, and maintaining grid stability as the resource mix trends towards greater distributed renewable generation sources. Singapore is taking deliberate steps to ride this trend and Diamond Energy is honoured to be the pioneering national partner in this field. The reserve market is essential as it is where stand-by capacity is procured. This is to ensure adequate electricity supply in the event of a power plant failure or other disturbance event in the power system.

Under the Energy Market Authority's leadership, Singapore was an early adopter of Demand Response and introduced Interruptible Load in the reserve market of the National Electricity Market of Singapore in 2004. "With companies such as Diamond Energy offering innovative demand management, including demand response services, consumers will be able to further reduce their electricity cost while improving system efficiency," commented Mr Chee Hong Tat, Chief Executive of the Energy Market Authority who officiated the opening.

Interruptible Load, or IL as it is often referred, is a form of Demand Response that is the equivalent of stand-by generation capacity in the form of curtailable electricity demand which can be turned off on a temporary basis in exchange for payments.

There are currently 15 registered loads in NEMS that provide IL, all of which are managed by Diamond Energy from its Demand Response Centre. These resources are capable of providing 21 MW of primary response (8 seconds), 21 MW of secondary response (30 seconds), and 23 MW of contingency response (10 minutes).[1] Providing IL allows electricity customers with the means to generate additional revenue, lower their expenditure on electricity, and improve their energy efficiency. During 2013 there were 20 contingency activation events with an average duration of 52 minutes. IL providers are paid based on their availability whether an activation event is called or not. Minimal affected hours makes participation suitable for electricity consumers that are able to manage the curtailment of nonessential electricity loads for short periods of time. Mr Zainul Abidin Rasheed, Chairman of Diamond Energy stated: "the official opening of our Demand Response Centre is an important step towards achieving our mission of changing the way electricity is consumed in Singapore."

From left to right: Mr Zainul Abidin Rasheed, Chairman Diamond Energy, Mr Chee Hong Tat Chief Executive Energy Market Authority of Singapore, and Mr Dallon Kay President & CEO Diamond Energy.

[1]Source: Energy Market Company Pte Ltd, however, note that the actual quantity registered for contingency is 23.2 MW which has been rounded down to 23 MW.

Canon Emirates receives renewal of ISO 14001 Environmental Management Standard certification

Dubai, United Arab Emirates – Canon Emirates, a leader in imaging solutions, has been re-certified to the ISO 14001 environmental management standard following an external environment audit reporting no 'non-conformities'. The recertification highlights Canon's ongoing commitment to meet all applicable environmental regulations while continuously improving its environmental performance in the local community. The internationally recognised ISO 14001 standard, to which more than 800 Canon sites worldwide are certified, is a strong reflection of the successful integration of environmentally responsible practices across all aspects of the business. The Canon Group is one of very few organisations that has achieved consolidated ISO 14001 certification covering all operations globally.

Shadi Bakhour

Shadi Bakhour, General Manager, Canon Emirates said: "At Canon, we aim to reduce the environmental impact of our products throughout their lifecycle from design concept to end of life. In 2014, our goal was to improve lifecycle CO2 emissions per product by 3 percent. Additionally, we looked at reducing waste per unit by 1 percent for the year, both compared to 2013. These efforts are in line with Canon's clear targets to manage the environmental impact of its products and operations across the region. Canon Middle East & Canon Emirates continues to invest heavily in sustainable best practices with environmental initiatives at the core of Canon's CSR commitment. The ISO 14001 environmental management system provides a framework for employees in Canon Middle East & Canon Emirates to identify and control the environmental impact of operations in line with regional regulations. A CSR and environment coordinator is appointed in each company department and every employee receives environmental awareness training.

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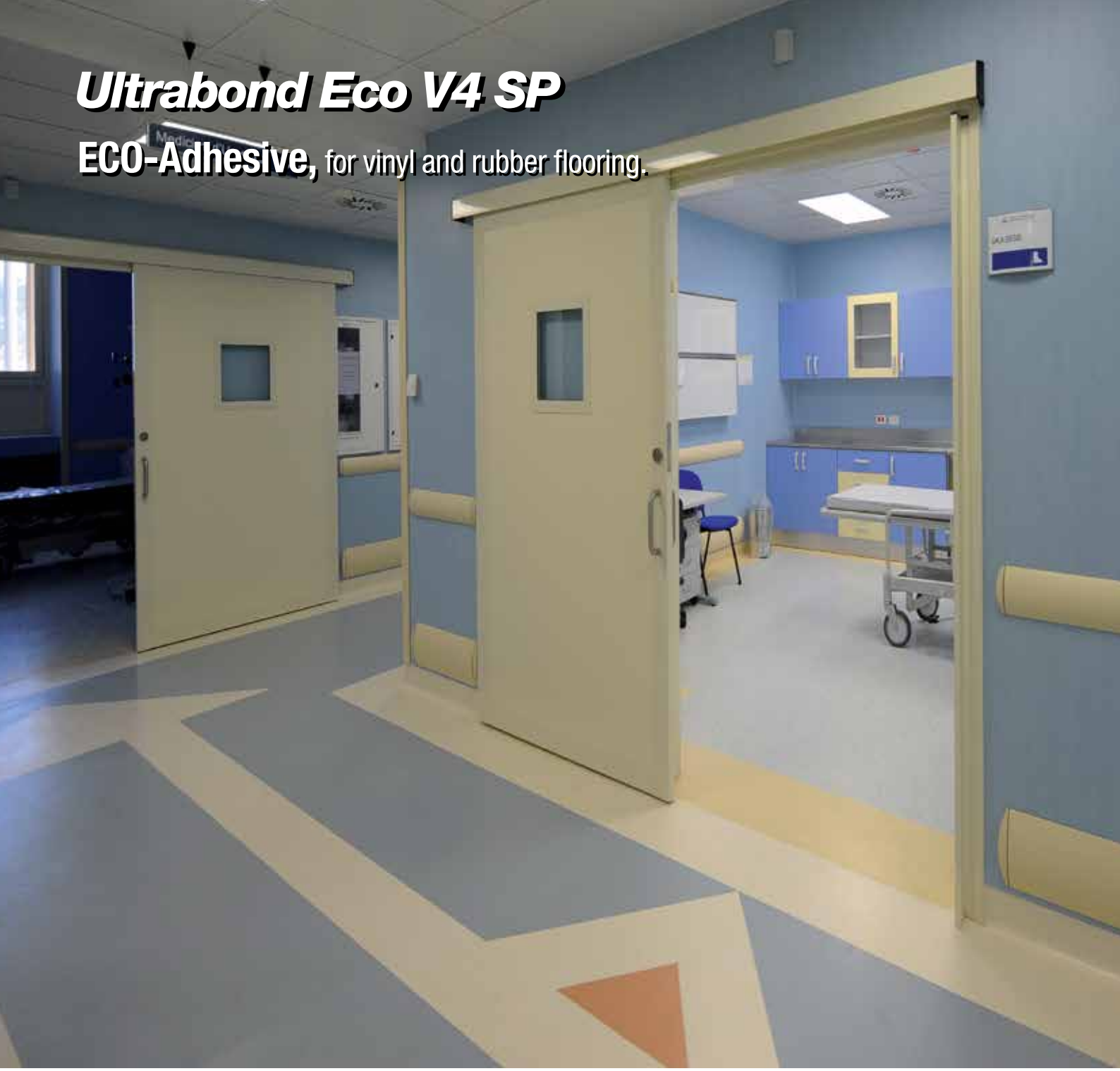

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Atkins leading the forefront of Transit Oriented Development in China

Hong Kong – Atkins has revealed the design for Cadre International TOD Center in Guangzhou. The mixed-use development has been designed based on Transit Oriented Development (TOD) principle and will be the first fully integrated TOD project in China, keeping Atkins at the forefront of this emerging trend to integrate urban environment and transport system to create a more liveable environment, promoting the increasing emphasis of quality of urbanisation from the Central government.

Ian Milne, Atkins' senior design director, said: "Cadre International TOD Center is a truly transformational project which evolves a sustainable model of high density mixed-use development that we at Atkins always have promoted. In urban and transport integration terms, it brings together places for people to work and live with East Guangzhou's important transport hub. The integration provides enhanced convenience for visitors to Cadre International TOD Center, interchanging passengers and people working or living nearby. We fully recognise and embrace the social, environmental and economic importance of connectivity to creating an urban development that is Future Proofing. We are proud to be at the forefront together with the project owner Shenzhen Cadre Group, and help the project owner support the Central government's vision for a quality urbanisation and to benefit the local communities through our expertise."

The development hosts 250,000 square metres of commercial property, integrated with a transportation hub, including an underground high-capacity metro interchange station, an elevated intercity railway station, and bus and taxi interchange located at ground level. These three transportation facilities are interconnected via a shopping mall which can be accessed

directly from the railway station concourses. Approximately 450,000 trips are generated daily which have significant impact in increasing footfall. The value for the commercial property can be increased up to 30 percent. The shopping mall, which consists of six levels above ground and two levels below ground, provides an array of entertainment facilities including a multiplex cinema, a food court, and a large public roof garden surrounded by cafes and restaurants. Large areas of public space, including a civic plaza and a green garden, are provided outside the development to ensure this landmark project benefits the surroundings.

The two tall towers provide a dramatic and iconic visual impact for the development from afar. Standing at 260 metres and 182 metres, the towers will be home for a five-star hotel, grade-A office space and SOHO residential apartments. Cadre International TOD Center is anticipated to open in 2018.

ThomsonAdsett leads Australasia's growing elderly living sector

Ampang 201, Kuala Lumpur, Malaysia, designed by ThomsonAdsett.

Brisbane, Australia – Australian architectural practice ThomsonAdsett has claimed second spot in the global elderly living sector in Building Design's renowned World Architecture 100, an international ranking of architectural practices by size.

The list ranks the world's top architectural practices of 2015, with breakdowns according to industry sectors and regions, and surveys more than 1400 practices across the globe.

ThomsonAdsett is the only Australasian firm to rank prominently in the global elderly living sector, in 2015 clinching second place behind US firm Perkins Eastman.

Japanese firm Nihon Sekkei has ranked seventh place in elderly living, while Chinese architects P&T follow closely behind at eighth position in the world.

ThomsonAdsett Managing Director Chris Straw said the practice is excited about conceiving new and innovative ways to tackle the challenges of an ageing population. "While we are number one in elderly living in Australia, we are only just starting to see real growth in elderly living in Asia, particularly in China," he said.

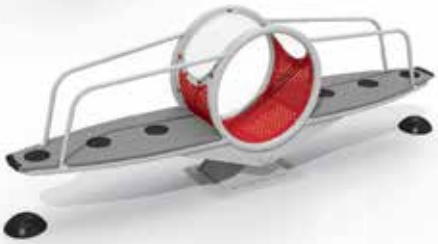
According to latest projections, China will have more than 450 million citizens over 65 by 2050, with more than 240 million people currently in this age demographic.

Elderly care and living projects by ThomsonAdsett currently underway or completed include Ampang 201 in Kuala Lumpur and St Paul's Residential Aged Care in Brisbane, and the practice is currently pursuing additional projects in Hong Kong, Macau, Singapore and Malaysia.

Unity™ Collection

A

B



C

D

E

F

The Unity Collection

A. Dome; B. Rushmore; C. Teeter Tunnel; D. Slide Climber E. Canopy; F. Steppers

The past propels us into the future

The post and platform structure has become standard play equipment on todays' playgrounds. When we look back a few decades, playgrounds were a play space that hosted several different pieces of individual play equipment—slides, seesaws, monkey bars, geodesic climbing domes and swings. This decentralized playground layout lets children maneuver throughout the playground, encouraging them to move around and use their imaginations to create new ways to play.

While still fundamentally used, "retro" play equipment isn't as relevant to today's children. It doesn't engage them in meaningful way.

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Park Hotel Group enters Indonesia with its first resort

Jakarta, Indonesia – Park Hotel Group, one of Asia Pacific's best hospitality groups, is strengthening its presence in Southeast Asia with a new management contract in Indonesia. The signing ceremony, which took place on 10 December 2014, in Jakarta with Twenty-One Development, will introduce the Group's first resort in Indonesia - Park Hotel Nusa Dua Bali, scheduled to commence operations in the first quarter of 2015.

Nestled on 3.4 hectares of land, Park Hotel Nusa Dua Bali has 152 guestrooms and suites with room sizes ranging from 25 square metres to 209 square metres. The suites are perfect for family getaways providing the expansive space a family requires and the perfect private space that couples long for. The suites are complete with a generous living room, dining area, kitchen, private balcony and pantry. The resort also has 39 villas comprising of 35 one-bedroom and 4 two-bedroom units, each with a private swimming pool and a traditional Balinese pavilion set in a lush tropical garden.

Luxurious villas with private pool.

Mr Allen Law, Park Hotel Group's CEO said: "We are pleased to be in this partnership with Twenty-One Development. We are confident that we will be able to build trustworthy and mutually successful relationships as we unlock the potential value of this asset. This partnership is an important milestone for our brand and the Group as we expand our presence in Indonesia with our first resort in Bali, a strategic and well-renowned travel destination. With the Indonesian government's recent pro-tourism initiatives, such as the visa-free access for major source countries, Park Hotel Nusa Dua Bali is well-poised to ride on an exciting wave of tourism growth."

Hilltop resort with stunning sea views.

The hotel is located on a hilltop in the popular precinct of Nusa Dua, providing stunning views of Nusa Dua Beach and Benoa Bay, creating the perfect setting for relaxation. It is a 10-minute drive from Ngurah Rai International Airport and is within easy access to the beaches of Nusa Dua, Tanjung Benoa, Uluwatu and the entertainment areas of Jimbaran and Kuta.

Creative team announced for 2015 Festival of Landscape Architecture

Canberra, ACT, Australia – The Australian Institute of Landscape Architects (AILA) has announced the Creative Director team for the 2015 Festival of Landscape Architecture, scheduled to take place 15-17 October 2015 in Melbourne.

Cameron Bruhn, Claire Martin and Ricky Ricardo were selected as Creative Directors for the 2015 Festival of Landscape Architecture, which carries the theme 'This Public Life'.

According to the newly appointed Festival Creative Directors, a better understanding of the social and cultural effects of built environments can provide new insights into some of the most important issues facing mankind today from the global to the local, and from complex environmental problems to the wellbeing of individuals and society.

The 2015 Festival of Landscape Architecture carries the theme 'This Public Life'.



From left to right: Cameron Bruhn, Claire Martin and Ricky Ricardo were selected as Creative Directors for the 2015 Festival of Landscape Architecture.

This Public Life will feature speakers from the arts and sciences, both nationally and internationally, and will aim to shift the prevailing conversation from self-reflective to collaborative and critical. The Festival will also encourage interdisciplinary awareness and enhance the public's understanding of landscape architecture.

The 2015 Festival of Landscape Architecture will explore the production of public life through three key themes:

- **Life + Death**: An exploration of human and natural systems, from therapeutic landscapes to restorative environmental design.
- **Love + Longing**: A consideration of form and meaning, through phenomenology and desire.
- **Participation + Spectacle**: An engagement with the city through imagination and action; from vernacular landscapes to scalar events.

This Public Life will feature a diverse range of events including the National Conference, 2015 National Landscape Architecture Awards, Research Summit, plus an array of tours and fringe activities.

For more information, visit www.aila.org.au/events.

Interface receives top environmental accolade

Singapore – Interface has received a top green accolade at the Sustainable Business Awards Singapore 2014 in the category of Climate Change Policy. The award was presented by Global Initiatives at the Responsible Business Forum on Sustainable Development in Singapore, 25 November 2014. Winner of other categories include Unilever Asia, DHL, City Development Limited and Sing Tel.

The Sustainable Business Awards (SBA) is produced by Global Initiatives and co-developed with sustainability adviser Price Waterhouse Coopers. The awards aim to recognise sustainable business practices that benefit the environment and all stakeholders, with an emphasis on integrating these goals into a long term strategy of business. The awards are also designed to build a global knowledge network of best practices, which will allow businesses to benchmark themselves against peer groups and improve their performance.

Clark Harris, Head of Marketing Interface Asia, receiving the Sustainable Business Award 2014, Climate Change Category, from Tony Gourlay, CEO of Global Initiatives. Photo: © Global Initiatives Communications

Interface was recognised for its climate change initiatives, which include reducing the company's manufacturing greenhouse gas emission by 71 percent for every unit of its product (kilograms of CO2e per square metre) from 1996 to 2014. Addressing its greenhouse gas emissions is a key component of Interface's Mission Zero® commitment, as the company strives to become a carbon neutral company by measuring, reducing and in some cases offsetting its carbon emissions. Additionally, Interface has implemented employee programs to help address the emissions associated with their personal and work-related travel, as well as customer facing initiatives like its pioneering recycling program ReEntry™, a carpet take-back and recycling program unique in Asia.

Interface calculates its global greenhouse gas emissions using the Greenhouse Gas Protocol Corporate Standard, which enables the company to analyse and report its emissions reductions. In addition Interface uses life cycle assessment to measure the footprint of its products for the Cool Carpet™ program, a greenhouse gas emission offset program that was one of the first of its kind. The inventory and progress is disclosed by Interface annually at www.interfaceglobal.com and through the Climate Disclosure Project.

Clark Harris, Head of Marketing Asia, Interface, who received the award, said: "We are extremely proud of this recognition and the role that our people have played in helping us to achieve this prestigious award. We started our journey to sustainability over 20 years ago and we have made significant progress in reducing our waste emission, energy and water use over those years. Our achievements prove that with dedication, perseverance and innovation, a true difference can be made."

Emirates Green Building Council launches 'Energy Efficiency Programme' to strengthen industry engagement

Dubai, UAE – Emirates Green Building Council (EmiratesGBC) has announced the launch of the 'EmiratesGBC Energy Efficiency Programme' to act as a bridge that networks industry experts for participation in future energy efficiency projects.

The programme will consist of a database that serves as a catalyst for all interested players, including energy efficiency equipment manufacturers & vendors, contractors, facility managers, banks & financiers, insurance companies and energy service companies (ESCOs) to assist in facilitating their industry requirements related to energy efficiency, by directing their needs to other players.

Through the 'EmiratesGBC Energy Efficiency Programme' (EEP), EmiratesGBC will act as an intermediary until the launch of the online database platform, providing members with a full list of contacts upon receipt of a request form for any energy efficiency related service. The online feature will be completed in 2015 and will provide EmiratesGBC members with instant access to the Energy Efficiency Database. In addition, it will further streamline information gathering, processing and sharing with the energy efficiency industry.

Saeed Al Abbar, Chairman of EmiratesGBC, added: "EmiratesGBC has set as one of its priority areas the promotion of the energy efficiency industry, which is in line with the 'green economy for sustainable development' vision announced by His Highness Sheikh Mohammed bin Rashid Al Maktoum, UAE Vice President and Prime Minister and Ruler of Dubai. The programme highlights our commitment to raising awareness of the importance of green buildings and energy efficiency and also in promoting positive action. The database will serve as a referral point for all energy-efficiency projects, enabling the stakeholders to identify the opportunities in the market."

Companies interested in more information and to register on the database can email info@emiratesgbc.org.

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PT Holcim Indonesia launches new Mortar Product Line

Jakarta, Indonesia – Responding to the changing construction practices in urban market and to provide innovative solutions to its customers, PT Holcim Indonesia Tbk launched new mortar products in early 2015. The three new products named Holcim Pasangan, Holcim Plesteran and Holcim Acian will provide a solution in creating a highest quality building and initially will be marketed in the Jakarta, Bogor, Tangerang and Bekasi area exclusively.

"Similar as our other products and solutions, Holcim Mortar have been through several trials and a high standardization process. In addition, these products are easy to use and efficient, so it will make the construction process easier, quicker, and with an exceptional nice finish," said Jan Kunigk, Commercial Director PT Holcim Indonesia Tbk.

All Holcim's mortar products have several advantages and different designations. Holcim Pasangan is to be used for application on the brick wall. This product is easy to apply with a high adhesion and a thinner mortar structure. Meanwhile Holcim Plasteran is to be used to plaster a light brick wall, red brick and bataton with the advantages of reduce the fine cracks in the wall and make a smooth surface on the wall. The last of Holcim's Mortar product; Holcim Acian can be applied to the surface of the plaster walls and concrete walls, both interior and exterior. Just like the other two products, this product is also easy to apply and has a fast drying time. Users can start doing a painting project within seven days after the plastering process.

"Holcim has always been committed to providing the best to our customers through a variety of product innovations and solutions. We are optimistic that this new product line will be accepted by our customers in Indonesia and become part of a series of solutions that Holcim delivers to its customers. Next, we will continue to innovate and focus on becoming one of the best players in this industry to be the most easy company to do business with, to deliver the promises and to add value the business projects and activities of our customer. For Holcim Indonesia this is being committed to the absolute fullest," concluded Jan.

First delivery of Holcim Mortar products to the area distributions in Jakarta, Bogor, Tangerang, and Bekasi.

Mason uses Holcim Mortar products for a higher result in building construction.

Rusli Setiawan, Relationship Management Director PT Holcim Indonesia Tbk (left) and Tony Amin, Director of PT Swadaya Sentosa Karya Prima (right) launch the Holcim Mortar products as a new solution for market in Indonesia.

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INSEAD opens new $55 million Leadership Development Centre in Singapore

Singapore – INSEAD, one of the world's leading business schools, opened the doors to its new Leadership Development Centre in Singapore on 15 January 2015. The 10,000 square metres centre marks "Phase Three" in the school's major Asia campus expansion. Combining world-class business research and a rich and diverse learning environment to further cultivate a global community of leaders, the new six-storey Leadership Development Centre will be a premier business innovation and executive education hub for the region.

The completion of the Centre signifies another landmark project by Lend Lease as the group continues to strengthen its strong track record in Singapore's construction sector. This is the second project that Lend Lease has delivered for INSEAD in Singapore. The previous project involved design and construction of a building extension in 2005.

The new Leadership Development Centre has attained Singapore's highest accolade for sustainable buildings, the Building and Construction Authority's Green Mark Platinum Version 4.0 award. Green features at the Centre have been embedded throughout the design and include naturally ventilated lift lobbies, solar panels, energy efficient lighting and building management systems, use of sustainable materials and rainwater harvesting for landscape maintenance. Commenting from the inauguration ceremony in Singapore, INSEAD Dean Ilian Mihov said: "The Leadership Development Centre is a significant milestone for INSEAD in our continued global growth and commitment to providing relevant and locally-driven business education across Asia, and globally. This year, we celebrate INSEAD's 15th anniversary in Singapore at the same time as Singapore celebrates its own 50th year of independence. We are proud to be a longstanding contributor to this thriving and constantly innovating global business centre. We owe much of our success here to the continued support of the Singapore Government and the Economic Development Board in particular."

A ribbon cutting ceremony celebrating the official opening of INSEAD's Leadership Development Centre in Singapore, marking "Phase Three" in the school's major Asia campus expansion. From left to right: Dr. Andreas Jacobs, MBA'90D, Chairman of the Board of Directors, INSEAD; Dr. Beh Swan Gin, Chairman of the Singapore Economic Development Board; Prof. Ilian Mihov, Dean of INSEAD; Prof. Michael Pich, Dean of Executive Education at INSEAD.

Mr Stuart Mendel, Managing Director of Project Management & Construction, Asia, Lend Lease said: "The INSEAD Leadership Development Centre strengthens our presence in the construction and education sectors. It adds yet another milestone to our over four decade long expertise and proven track record in delivering facilities for renowned clients in the education sector. We are particularly proud to achieve the highest sustainability accolade – Green Mark Platinum – which will future proof the facility and create long term value for INSEAD."

Benoy announces masterplan for Bahrain Marina

Hong Kong – Benoy has announced the first phase of the Bahrain Marina Development in Manama, Bahrain. The firm has just completed the Concept Masterplan for this luxury scheme, which will reinvent the current marina with a 150,000 square metres mixed-use design including the prestigious Bahrain Marina Yacht Club.

State-of-the-art facilities across several sectors, comprising Residential, Entertainment, Leisure and Hospitality will further develop this bustling capital city. With a 5-Star hotel, serviced apartments, retail offers, a cinema and a wide variety of food and beverage options, the Benoy Masterplan will create a landmark community anchored by the Bahrain Marina Yacht Club situated at the heart of the project.

Photo: © Benoy

Subtle aspects of the design, such as the wide promenade encouraging visitors to meander through the retail area and enjoy the water features which will accent the vibrant atmosphere, along with other prominent amenities, combine to create this new lifestyle icon. The development will completely transform the current waterside area of Manama into a premier destination reaching far beyond the Gulf Coast region.

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RAK Ceramics announces Q3 2014 results

Ras Al Khaimah, UAE – RAK Ceramics, one of the world's largest ceramics manufacturers, has released its financial results for the third quarter of 2014. The results come as expected and revealed the impact that the recent strategic changes have had on the consolidated financial performance.

The third quarter earnings released show that the consolidated Q3 2014 revenues decreased by 10.7 percent quarter on quarter to AED 823.2mn (6.6 percent decline year on year to AED 2,484.4mn) as a result of RAK Ceramics' strategic decision to scale down on non-core activities, revenues in non-core decreased by 38.2 percent in the third quarter 2014.

The strategic alignment by the company however, resulted in RAK Ceramics' EBITDA increasing by 32 percent over the period to AED 154.3 Million (13.7 percent increase year on year to AED 464.4mn). Net profit has decreased by 18 percent to AED57.4mn (6 percent decrease to AED 207.3mn YTD) as a result of the hyperinflation accounting in Sudan and Iran. However, once adjusted to take this into account the figures show a Q3 2014 increase in net profit by 9.4 percent to AED 76.9mn (15.3 percent increase to AED 254.1mn YTD)

RAK Ceramics' continues its strategic alignment as mandated by the Board of Directors' Value Creation Plan in order to focus on core activities of tiles and sanitaryware and exit non-core activities. "We are starting to see the benefits of this alignment, as our tile and sanitaryware divisions are seeing significant growth. In addition, with our efforts in the Saudi Arabia market now focused on transforming our operations to a direct sales approach supported by new infrastructure, we expect this transformation to bear fruit in 2015 on our financial results with improved revenue opportunities," said Abdallah Massaad, CEO, RAK Ceramics.

"To meet the continued growth of our tile and sanitaryware divisions, we are continuing to invest in new production facilities around the world. With many production expansion programs underway, RAK Ceramics continues to evolve to meet the demands of its global customers. We look forward to all our new production capacity coming online in 2015 which we expect will make a significant and positive impact on our core business assets," added Massaad.


Abdallah Massaad, CEO, RAK Ceramics

New RAK Ceramics production capacity expansion includes:
India: July 2014 production expanded to 2,100 pcs/day; to be further expanded to 3,500 pcs/day to come online in Q1 2015

Bangladesh:
- Sanitaryware production expansion underway - from 3,350 pcs/day to 4,350 pcs/day to come online in Q1 2015
- Tile production expansion underway by 10,000 pcs/day to come online by Q3 2015

UAE: Sanitaryware production expansion is currently under review and an announcement regarding this will be made once board approval is received

CT-Art Creation awarded Maintenance and Inspection contract for Playground and Splashpad at Gardens by the Bay

Singapore – CT-Art Creation Pte Ltd has been awarded a Maintenance & Inspection Contract for the Splashpad and Playground at the 'Far East Organisation Children's Garden' in the Gardens by the Bay.

The award is part of facility management programme for Gardens by the Bay. Gardens by the Bay has developed and implemented a comprehensive playground inspection and maintenance programme. The work scope involves a periodic maintenance and inspection of the facilities, performing high and low frequency inspections, identifying areas of wear and tear, vandalism or failure.

The primary reason to implement this programme is to prevent and minimise injuries on the playgrounds. As substantial financial assets that need to be proactively maintained to function as designed. Playgrounds are a place for children to develop socially, intellectually and physically. A well maintained playground is safer and will last longer.

The Inspection and Maintenance will be carried out by trained and qualified personnel from CT-Art Creation. The company has the qualifications for Playground Safety, Playground Maintenance and Aquatic Facility Operations. A Mobile Inspection Application will be used where the client will receive instantaneous updates on the situation of the play facility. CT-ART Creation has a specialised team of Installers and Maintenance team to serve their customers. The company currently has maintenance contracts with Capitaland, NParks and United World College.

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Ascott's growth in China gains momentum with three more properties in Beijing and Hong Kong

Hotel Pravo Hong Kong. Photo: © Ascott

Citadines Fangshan Beijing and Changyang World Serviced Residence Beijing. Photo: © Ascott

Singapore– CapitaLand's wholly-owned serviced residence business unit, The Ascott Limited (Ascott), has secured contracts to manage three more properties with over 300 apartment units in Beijing and Hong Kong. The new properties will further reinforce Ascott's leadership position as the largest international serviced residence owner-operator in China, with over 12,900 apartment units in 72 properties across 23 cities.

Ascott is deepening its presence in Beijing by securing the 208-unit Citadines Fangshan Beijing and 70-unit Changyang World Serviced Residence Beijing through its strategic alliance formed with Vanke last year. Vanke is one of the largest property developers in China and the two properties in Beijing are slated to open in 2018. Ascott also plans to open its fifth property in Hong Kong – the 92-unit Hotel Pravo Hong Kong in March 2015.

Mr Kevin Goh, Ascott's Managing Director for North Asia, said: "Ascott has been growing rapidly in China at an annual growth rate of 25 percent in 2014. Through management contracts, investments and strategic alliances, we have more than double the number of apartment units in China within five years, and built a stronghold in the country with the largest market share. Last quarter alone, we secured five serviced residences with over 1,000 apartment units in four cities. The three new properties will bring us closer to Ascott's target of 20,000 apartment units in China by 2020."

KONE poised for growth in East Malaysia with new Sabah office

Opening ceremony of KONE new Sabah Office.

Singapore – KONE, a global leader in the elevator and escalator industry, recently opened a new branch office in Kota Kinabalu, Sabah, Malaysia. This latest investment in Malaysia is to enhance the service level to its existing customer's base and poises itself for growth in the East Malaysia.

KONE's Malaysia operations, KONE Elevators (M) Sdn Bhd., wholly owned by KONE Corporation in Finland, has its new branch office situated at Cybersquare Commercial Centre, Kota Kinabalu.

"With increasing foreign and domestic investments, developments in East Malaysia is growing in tandem with the other states in the country and this expansion enables us to better serve and meet the needs of existing and new customers," said Mr Lim Chong Hoe, Managing Director, KONE Elevators (M) Sdn Bhd.

KONE's innovative people flow solutions, best-in-class energy efficiency elevators offerings and People Flow Intelligence solutions like the destination operating panel, enhance the user experiences, contributing to development of smarter cities and buildings. In June 2014, KONE Malaysia was awarded the contract to supply elevators, escalators and KONE People Flow Intelligence solutions including KONE highly innovative Destination Control System to KL118 Tower (Warisan Merdeka), a 118-storey mixed use tower developed by PNB Merdeka Ventures Sdn Bhd in Kuala Lumpur, Malaysia. KL118 is expected to be the tallest building in Malaysia upon its completion. KONE is also the provider of people flow solutions for Hatten City, a mixed-use development in Malacca, Malaysia. Its residential tower, Silverscape is among one of the highest buildings in the State of Malacca.

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James Corner Field Operations selected to design Presidio Parklands

New York, USA – The Presidio Trust has announced the selection of James Corner Field Operations to design 13 acres of new parkland at the Golden Gate. The New Presidio Parklands Project is a partnership between the Presidio Trust, the Golden Gate National Parks Conservancy (Parks Conservancy) and the National Parks Service (NPS). Field Operations was selected from a group of five internationally-renowned design finalists.

Site aerial view. Photo: © Presidio Parkway Project

Field Operations is honoured to help envision this amazing, world-class site, bridging the Presidio with Crissy Field, the Marsh and the larger bay. "The New Presidio Parklands Project has garnered the interest and excitement of some of the world's most talented and creative design teams," said Craig Middleton, Presidio Trust Executive Director. "James Corner's record of accomplishment, deep appreciation for the site, and commitment to engaging the community makes his team an ideal partner for this magnificent opportunity," he added.

The new parklands will be created by replacing Doyle Drive, an elevated highway, with an at-grade roadway covered by tunnels. The thirteen acres of new land above the freeway will reconnect two Presidio destinations, the historic Main Post and Crissy Field. Once completed in 2018, the new landscape will offer visitors an unparalleled experience of the Golden Gate.

The Field Operations Team is proud to include: EHDD, Rockwell Group, Gregoire Associates, Magnusson Klemencic Associates, HR&A Advisors, Richard Turner, Perry & Associates Collaborative, Greenlee & Associates.

ABSTRAKT Studio Architecture wins competition to design Memorial to the Victims of Communism

Artist's impression: © MVOC ABSTRAKT Studio Architecture

Ottawa, Canada – ABSTRAKT Studio Architecture has been chosen to design Canada's future National Memorial to Victims of Communism in Ottawa. The future National Memorial to Victims of Communism will be prominently located on Confederation Boulevard (Wellington Street) beside the Supreme Court of Canada and Library and Archives Canada, with views toward the Peace Tower and other key federal institutions. It has a site area of 5,000 square metres and will be built with a budget of approximately $5.5 million CAD (Canadian Dollars).

This national memorial will create awareness of the horrors of communism and pay tribute to the more than 100 million people worldwide who perished or suffered under communist tyranny. This new Capital landmark will recognise the role Canada has played in offering refuge to the millions that left behind torment and oppression for a new beginning in a free and democratic country.

The submission by ABSTRAKT Studio Architecture was selected from among six finalists who were invited to present their design concepts to a jury of professionals and to the public as part of a national design competition.

ABSTRAKT Studio Architecture team comprised of: Voytek Gorczynski architect, OAA Toronto, Canada; Janusz Kapusta artist, PhD. New York, USA; and Andrzej Pawlik architect Warsaw, Poland. The expected date of completion is 30 November 2015.

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From 6,000 entries to 3 winners: Introducing the Global Holcim Awards 2015 finalists and jury

Zurich, Switzerland – 15 projects out of more than 6,000 submissions in the 4th International Holcim Awards competition were acknowledged with Gold, Silver, or Bronze Awards in each of the five regions of the world. They are automatically qualified for the elite phase of the competition: the Global Holcim Awards 2015. The jury composed of renowned specialists from around the world will be headed by Mohsen Mostafavi, Dean of the Graduate School of Design at Harvard University (USA).

The finalist projects reflect a broad variety of the current interpretation of sustainable construction combined with architectural excellence and enhanced quality of life beyond technical intervention. Each of the finalist teams is invited to prepare a more extensive submission that will be evaluated by the Global Holcim Awards 2015 jury including Marc Angélil, Senior Dean of Architecture and Urban Design at the Swiss Federal Institute of Technology (ETH Zurich, Switzerland), Alejandro Aravena, Principal of Elemental (Chile), Maria Atkinson, Founding Director of the Australian Green Building Council (Australia), Meisa Batayneh Maani, Principal of maisam architects and engineers (Jordan), Yolanda Kakabadse, President of WWF International (Ecuador), Matthias Schuler, Principal of Transsolar (Germany), and Rolf Soiron, Chairman of the Board of the Holcim Foundation (Switzerland).

The Holcim Awards is one of the most significant competitions in its field in terms of reputation and international scope. The three winners of the global prizes will share in prize money of USD 350,000 with the results to be announced in April 2015. Previous winners of the tri-annual Global Holcim Awards include Bureau EAST (Los Angeles, USA), Centola + Associati (Salerno, Italy), Coelacanth and Associates (Tokyo, Japan), Ingenhoven und Partner Architekten (Dusseldorf, Germany), Kéré Architecture (Berlin, Germany), L'OEUF (Montreal, Canada), Public Architecture (San Francisco, USA), Proyectos Arqui5 (Caracas, Venezuela), realities:united (Berlin, Germany), Tsinghua University (Beijing, China), and Urban-Think Tank (São Paulo, Brazil).

Members of the Global Holcim Awards 2015 jury.

The projects competing for one of the three Global Holcim Awards prizes are located in Austria, Colombia, Costa Rica, Ethiopia, France, Italy, Lebanon, Mexico, Nepal, Sri Lanka, Thailand, Turkey, and the USA and were entered by authors from these countries as well as from Germany, the Netherlands, and Spain. Further information on members of the jury and the finalists can be found on:

- Members of the global jury 2015: www.holcimawards.org/globaljury
- Finalist of the Global Holcim Awards 2015: www.holcimawards.org/globalfinalists

Dunkin' Donuts launches DD Green™, an initiative to build sustainable and energy-efficient restaurants

Canton, Massachusetts, USA – Dunkin' Donuts has launched DD Green™ Achievement, a building certification programme designed to help franchisees build sustainable, energy-efficient restaurants. In conjunction with the announcement, the company is celebrating the grand opening of a DD Green Achievement Dunkin' Donuts restaurant at 5560 E. 7th Street in Long Beach, California. Dunkin' Donuts will work with franchisees and construction managers to build 100 new DD Green Achievement restaurants by the end of 2016.

To be recognised as a DD Green Achievement restaurant, franchisees, construction managers and architects will follow a five-stage programme during the planning, design and construction phases of store development. Those that have met the DD Green Achievement criteria will display a DD Green Achievement plaque in-store that notes the restaurant's efforts in energy reduction and sustainable design.

"We are delighted to be able to launch the DD Green Achievement initiative, a green-building programme that is customised for our various store formats and designed to enable us to meet our long-term environmental targets," said Paul Twohig, President, Dunkin' Donuts U.S. and Canada, and Dunkin' Donuts & Baskin-Robbins Europe and Latin America. "We are committed to building more sustainable restaurants, and this new program is designed to reduce our overall environmental footprint and improve operating costs for our franchisees," he added.

The five stages of the DD Green Achievement programme include Site Development, Store Efficiency, Healthy Indoors, Sustainable Operations and Innovation and Community. Each stage of the DD Green Achievement strategies provides a brief synopsis of the strategy goal, specific educational information, guidance and metrics to achieve with the design and construction team.

Each stage focuses on securing sustainable strategies and practices for restaurants, including the mitigation of construction pollution and waste recycling, installation of energy-efficient LED light fixtures, mechanical units and water-saving plumbing fixtures, implementation of healthy environments with indoor air quality management and use of zero-VOC paints and a required sustainable building operations training for employees. Franchisees can achieve two different levels within the program, DD Green Achievement, where stores meet minimum sustainable requirements, and DD Green Elite, where stores reach beyond requirements, and achieve additional suggested sustainable goals.

UL Environment, a business division of UL – the global independent safety science company – audits and certifies sustainability programmes, and reviewed the DD Green Achievement programme structure in 2014. "We applaud Dunkin' Donuts for their efforts in promoting improved sustainable building practices via this program," said Catherine Sheehy, Program Manager for UL Environment. "We have reviewed the new DD Green Achievement programme and confirmed that the strategies required for achievement will, if implemented as described, enable participating Dunkin' Donuts restaurants to achieve reductions in energy and water usage, and reduce waste and material sent to landfills in comparison to Dunkin' Donuts restaurants that do not implement the DD Green Achievement strategies required for certification," she added.

Onyx Solar begins installation of 33 photovoltaic skylights at the Viracopos Airport in Sao Paulo

Avila, Spain – The photovoltaic Low-e glass of Onyx Solar will transform the new terminal at this modern airport, one of the largest in South America, in a building that generates its own energy from the sun.

Onyx Solar has provided the International Airport of Viracopos-Campinas with more than 4,000 photovoltaic glass units which will cover a total area of 3,240 square metres. The photovoltaic installation will reach a total capacity of 117 kWp. The project at this incredible Brazilian airport signifies the largest South American project yet for Onyx Solar.

This photovoltaic low emissivity glass is being installed on the building's roof as 33 skylights. The beneficial characteristics include its semi-transparency to allow the diffusing of the sunlight; protection against solar radiations (UV & IR); and thermal and acoustic insulations. Due to the nature of the continuous flow of aircrafts in the vicinity, the acoustic insulation has a great deal of importance.

Bee'ah commissions Zaha Hadid Architects to build its new Headquarters

Render by MIR ©Zaha Hadid Architects

London, UK – Bee'ah, the Middle East's leading fully integrated environmental and waste management company has commissioned Zaha Hadid Architects to build its new Headquarters building in Sharjah, UAE, following the 2013 international competition.

The new Headquarters building is part of Bee'ah's ongoing investment to transform attitudes and behaviours in individuals, communities, businesses and cities by providing the infrastructure, tools and support to achieve their environmental goals. Working towards achieving its Zero-Waste to landfill, cleaner air and water, renewable energy and sustainable future targets, Bee'ah is developing and providing coherent and sustainable environmental solutions to meet the challenges of the community it serves.

The Bee'ah Headquarters building embodies these principles by providing the company with an administrative centre of sustainable construction of LEED Platinum Certification, with ultra-low carbon and minimal water consumption in operation and minimised material consumption in construction. The new building and site will also be used as a learning resource to demonstrate practical environmental awareness to the wider community.

Bee'ah aims to set new standards in the UAE through utilising 100 percent green renewable energy sources to power its new Headquarters and are ensuring that the maximum amount of recycled materials recovered from waste are used in its construction.

The Headquarters building has been designed with environmental considerations woven into every aspect of the design using a hierarchical approach to first limit the need to consume resources; where resources are required - to minimise their consumption; and finally to offset consumption of resources through the harvesting of renewable systems.

Designed in response to its natural environment to provide comfort for visitors and staff alongside minimising energy and resource consumption, the formal composition of the new Bee'ah Headquarters building has been informed by its desert context as a series of intersecting dunes orientated to optimise the prevailing Shamal winds, and designed to provide its interiors with high quality daylight and views whilst limiting the quantity of glazing exposed to the harsh sun.

The 7,000 square metres Bee'ah Headquarters is located on a 90,000 square metres site adjacent to the Bee'ah Waste Management Centre. The large site enabled the development of the design as an array of dunes within its desert landscape leading to the two central dunes of the Headquarters building.

The building's structure has been developed in conjunction with Buro Happold to minimise material consumption through architectural and structural integration. Individual elements of the building's structure and skin are of standard orthogonal dimensions, enabling significant portions to be constructed from materials recovered from the local construction and demolition waste streams managed by Bee'ah, minimising demand for new materials.

Baca completes project on Climate Adaptive Neighbourhoods

London, UK – Baca Architects' Climate Adaptive Neighbourhoods (CAN) Project has been recognised in the RIBA President's Medals 2014, receiving a commendation. The CAN Project is used to identify measures to adapt to climate change and a timeline in which these should be carried out. The research involved working with the University of East Anglia (UEA) Tyndell Centre, to use the Weather Generator Project (as used for UKCP09) to explore climate impacts at high resolution. This cutting edge research, with a focus on water stress and water hazard, is particularly relevant to many parts of the East of England.

The Project has advanced the design of an existing innovative masterplan for 700 flood-proof homes on a prominent regeneration site in Norwich; to create a holistic design that simultaneously addresses a range of climate issues for East Anglia. Working with a consortium of high-profile experts, Baca and team undertook in-depth academic research and testing of the best products, practices and materials to tackle water stress, flooding and overheating.

One of the most positive findings of the work was the potential that flood-risk management measures could improve

Photos: © Baca Architects

cooling opportunities within neighbourhoods and buildings and provide space for rainwater harvesting.

The proximity to water presents opportunities for cooling either directly from the water or indirectly from the reduced temperatures surrounding the water.

The flood void created by raising buildings above the ground level provided a potential source for passive ventilation and cooling (equivalent to a labyrinth and stack cooling system).

The heavy masonry construction required to provide flood resistance or resilience at the ground floor, provided thermal mass that helped to reduce the overheating risk.

The possibility to use the flood void to provide large volumes of rainwater harvesting warrants more detailed research, particularly in areas of water stress.

The research identified the potential beneficial relationship between overheating and flooding resilience strategies. Many of the sites currently at risk of flooding throughout the UK are also predicted to experience significant increases in average and peak temperatures. Interspersing blue and green space throughout development can help make space for water as well as provide natural cooling.

For the East Anglia region, identified by REGiS as prone to flooding and with a higher than average degree of climate change, the benefits of this research to retro-fitting existing developments in the area could save multi-millions of pounds over coming decades. Nationally, it will could help save capital costs and design on similar construction projects.

2015 AIA Gold Medal awarded to Moshe Safdie, FAIA

Washington, D.C., USA – The Board of Directors of the American Institute of Architects (AIA) has awarded the 2015 AIA Gold Medal to Moshe Safdie, FAIA, whose comprehensive and humane approach to designing public and cultural spaces across the world has touched millions of people and influenced generations of younger architects.


Moshe Safdie. Portrait by Stephen Kelly

Many of Safdie's Asian and Middle Eastern projects exhibit a sense of timelessness closely associated with his mentor, Kahn. Safdie once told Tablet magazine that if architecture is good, "then it will feel obvious, and like it's always been there." In Israel, his Mamilla Center blends in contextually and materially with a 19th century Jerusalem neighbourhood, offering people range of dynamic gathering spaces and enhancing the contemporary urban experience. In Punjab, India, his design for the Khalsa Heritage Centre (a museum of Sikh history and culture) shows visitors an elemental juxtaposition of stone and concrete with water. The building is made up of a rich mix of orthogonal geometry and curvilinear forms, organic and flowing in some places and rigid and rational in others. This mixture alludes to the primeval determination the earliest builders felt when they conspired to put together posts, lintels and right angles in defiant opposition to gravity, and also the natural world they struggled to endure against.

This is a pattern seen throughout Safdie's architecture: the broad, explicit combination of grid-based forms with fluid curves. Safdie's work naturally melds opposing forms – fusing arcs into squares, spheres into cubes, and ovals into rectangles – to create emotionally evocative architecture.

Some of Safdie's most notable works include:

The Salt Lake City Main Public Library, a triangular glass library intersected by a crescent-shaped wall which forms an urban room and leads visitors up to an observation deck with views of the nearby Wasatch Mountains. The transparency offered by the glass library volume and the gracefully arcing wall and public space it forms evokes a dramatic contrast of enclosure and openness.

The Yad Vashem Holocaust History Museum in Jerusalem, a concrete prism carved into Mt. Herzl that takes visitors on a linear, narrative journey that explores the individual identities of Holocaust victims, finally giving way to an observation deck with broad views of Jerusalem below, symbolising the collective future of the Jewish people.

Marina Bay Sands in Singapore is a high-density urban district that serves as a gateway to Singapore, anchors the Singapore waterfront, and provides a dynamic setting for a vibrant public life. The project's most dramatic feature is the 3-acre SkyPark, which connects the hotel's three 55-storey towers at the top, spanning from tower to tower and cantilevering 213 feet beyond. Its mixed-use program (theater, museum, hotel, convention center) makes it nearly a city unto itself.

The Crystal Bridges Museum of American Art in Bentonville Ark., an idyllic village of copper-clad shells containing American art. This village of forms creates a series of dams and bridges over a reservoir fed by nearby Crystal Springs, intimately revealing the natural landscape and huddling around the water like a group of timeworn river stones.


Marina Bay Sands in Singapore. Image by MBS Visual Media

CENTRIA products to be offered by RigiSystems

Moon Township, Pennsylvania, USA – CENTRIA International, an industry leader in the design, development and manufacture of architectural metal wall and roof systems, is pleased to announce that it has reached an agreement with RigiSystems, a metal roofing and cladding systems manufacturer headquartered in Worcester, UK. The company signed an agreement to market CENTRIA's exterior metal architectural systems throughout the UK, Europe and the Middle East. "More and more, architects, contractors and building owners across the globe are recognising the value that CENTRIA's high-performance products bring to their unique designs," said CENTRIA's Ray Caudill, Vice President - International. "This agreement with RigiSystems will continue to extend our global reach, allowing even more industry professionals to reimagine the possibilities of metal," he added.

RigiSystems has more than 30 years of experience in the manufacture and supply of metal cladding products to the construction industry. The company was an industry pioneer of standing seam roofing systems, and has continued to build a reputation for delivering quality as a leading supplier in the global marketplace.

"This represents a major opportunity for us," said Grahame Rankin, managing director of RigiSystems. "CENTRIA has a well-proven track record for innovative and successful architectural metal products, and we are delighted that they have chosen RigiSystems to market these products in the UK and Europe," he added.

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The Pritzker Architecture Prize welcomes Richard Rogers to the Jury

Chicago, USA — Tom Pritzker, president of the Hyatt Foundation, announced that London-based architect Richard Rogers has joined the jury of The Pritzker Architecture Prize. Mr. Pritzker said, "Richard Rogers understands architecture in its larger context and is deeply committed to its crucial role in creating livable cities."

Richard Rogers is the 2007 laureate of the Pritzker Architecture Prize, and Tom Pritzker added: "In addition to being a Pritzker Laureate, Richard's humanist perspective will make a substantial contribution to the jury and the message that is the core of the Prize."

From his studio in London, Lord Rogers said: "It is an honour to be invited to join the jury of the Pritzker Architecture Prize, the most prestigious international Architecture Award for a living architect. I continue to be inspired by architects from around the world, and it will be thrilling to be able to review the best of the best with my fellow jurors."

Photographer: Andrew Zuckermann
© Andrew Zuckermann/RSHP

Lord Peter Palumbo, the chair of the Pritzker Prize jury, said: "Richard Rogers is an architect, an urbanist, and a humanist of the highest order, whose appointment as a jury member of the Pritzker Prize will be widely welcomed, both in the world of architecture and by everybody connected with the prize. On a personal level, I am particularly pleased that Richard has found the time in a very crowded agenda to commit to the prize. The experience and wisdom that he will bring to the table is a hugely valuable resource."

HOK completes acquisition of 360 Architecture and launches Sports + Recreation + Entertainment practice

St. Louis, USA – HOK announced that it has completed the acquisition of Kansas City-based 360 Architecture, a 200-person firm that is a leader in the design of sports, recreation, wellness, entertainment and mixed-use facilities. The completion of this transaction provides immediate benefits to both firms' clients through the creation of HOK's new global Sports + Recreation + Entertainment practice and expanded capabilities in Kansas City, Columbus and San Franscisco.

"We acquired 360 because we consider them the world's most innovative designers of stadiums, ballparks, arenas, recreation and wellness centers, and mixed-use entertainment districts," said Patrick MacLeamy, FAIA, HOK's chairman and CEO. "This partnership also enables us to provide design services to all types of clients through new HOK offices in Kansas City and Columbus. It's a transformative acquisition that will bring significant benefits to our clients and people," added Patrick.

HOK's new Sports + Recreation + Entertainment practice will draw on the firm's expertise in other markets including Aviation + Transportation, Civic + Cultural, Commercial, Corporate, Education, Government, Healthcare, Hospitality, Justice, Residential, Retail, Science + Technology and Tall Buildings to provide clients with highly integrated solutions.

"We're thrilled about leveraging HOK's worldwide network to expand our sports, recreation and entertainment design practice while offering our clients design leadership in many other markets," said Brad Schrock, AIA, a former 360 Architecture principal and a new director of HOK's Sports + Recreation + Entertainment practice.

HI-MACS® creates personal app

Geneva, Switzerland – These days, businesses and retailers must keep their resources constantly up to date if they want to stay abreast of changes in a digital market now worth billions. This unstoppable mobile revolution has prompted HI-MACS® to create a personal app, following on from the recent launch of its new-look website. This venture will bring users closer still and give them accurate information in an instant, completely fresh and easy-to-use format.

Photo: © HI-MACS®

The HI-MACS® app is available for Apple and Android phones and with its immediate, highly visual interface and clear, linear sequence, anyone can explore it in just a few taps. The information is available in five languages and as well as presenting the outstanding qualities of this next generation acrylic stone (such as impermeability, thermoformability and heat resistance), it also illustrates all the product offerings available (colours and basins), the catalogues and the company's history, which is our guarantee of outstanding technical precision and aesthetic and functional quality.

Through an ordered series of projects carried out in collaboration with some of the world's most prominent architectural firms, users will be able to stay up to date in real time with the company's latest developments and view the infinite number of applications that HI-MACS® can be used for in the architecture, building and design fields.

If they need more information, they simply have to visit the 'contacts' section to get a full, personalised consultation on the spot. The HI-MACS® app has not been developed simply as a basic tool: it is a real extension of the company itself, which will at least be quite literally at everyone's fingertips. The HI-MACS® app is available worldwide for free since November 2014.

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MVRDV wins tower competition in Vienna

Rotterdam, The Netherlands – Development Corporation BAI have announced MVRDV as the winner of their competition for a spatially-flexible tower near the world famous Gasometers in Vienna. The tower combines numerous higher floors designed to maximise space and a number of lower floors designed to minimise effect of the building's shadow cast onto the buildings around it. The 110 metre tower will offer 35,680 square metres of flexible space which can accommodate both offices and housing, as well as retail spaces, restaurants, cafes and parking, with construction envisioned to start in 2016.

Photo: © MVRDV

The area of the famous Gasometers is located between the airport and the city centre and is in need of significant urban regeneration. The site for the tower is directly adjacent to a metro station, and building regulations initially restricted allowable construction to a 75 metres high volume, which should be trapezoidal in plan. MVRDV proposed a more compact and efficient square layout, which resulted in a taller volume to make up for the reduced footprint. In exchange for these concessions in the building's volume and plan, the impact of the building's shadow on its neighbours was minimised by MVRDV. The solution was to parametrically shape the lower 10 floors of the building into a twist, to minimise the structure's shadow cast onto the neighbouring facades to only two hours a day.

Winy Maas, co-founder of MVRDV said: "It is nice to see that if we take the two hour cast shadow regulation seriously we are able to create an unprecedented tower. A tower with a slender 'taille'. Isn't that the classic definition of beauty?"

Through this operation, an elegant, hour-glass figure emerged that responds to its surroundings by opening up views towards the Gasometers and the rest of the city. The design for the plaza around the tower becomes like a gigantic sundial, on which the shadow of the building delineates the passing of time.

The individually shaped floors of the building's twist, each of which are unique in plan, offer generous outside spaces connected to one another by external stairs. In doing so, the twist helps to enliven the lower part of the tower, connecting it to the plaza below, and allowing for a degree of direct access which is rare in urban environments so often characterised by introverted tall buildings. This curving 'waist' also functions to siphon off fierce autumn winds, a frequent phenomenon in the Danube valley, diverting the wind away from the plaza and the metro station entrances and ensuring comfort in the public space beneath.

The first 10 floors twist up to the eaves height of the surrounding urban area, while the 20 remaining higher floors of the tower have a square layout. The combination of these layouts leads to a celebration of the uniquely Viennese combination of urban blocks and towers. The square layout and efficient core distribution enhance this flexibility and result in a net floor surface of 80 percent of column-free spaces which feature a 3.5 metre ceiling height. The floors of the building can be developed into housing or a wide variety of office configurations, from open plan to division into smaller spaces, and due to its flexible structural layout, the tower can be reconfigured functionally at a later stage. The tower will be realised in a cost effective structure of composite columns and concrete slabs. The steel and glass façade will include operable windows and full-height French doors in order to allow for natural ventilation. Parking is provided in the basement with 110 parking bays, and the building will also benefit from excellent transit connections due to the immediate vicinity of the metro station.

MVRDV won the competition to design the tower together with Bollinger + Grohmann Ingenieure Wien (struc-ture) and Energy Design Cody Consulting (sustainability). Other participants in the two stage competition were Dietmar Feichtinger Architectes, Dominique Perrault Architecture, KCAP Architects & Planners, Bevk Perovic Arhitekti, Delugan Meissl, Burkard Meyer Architekten, BSA, Sauerbruch Hutton, Nieto Sobejano Ar-quitectos, eep architekten and Pichler & Traupmann Architekten.

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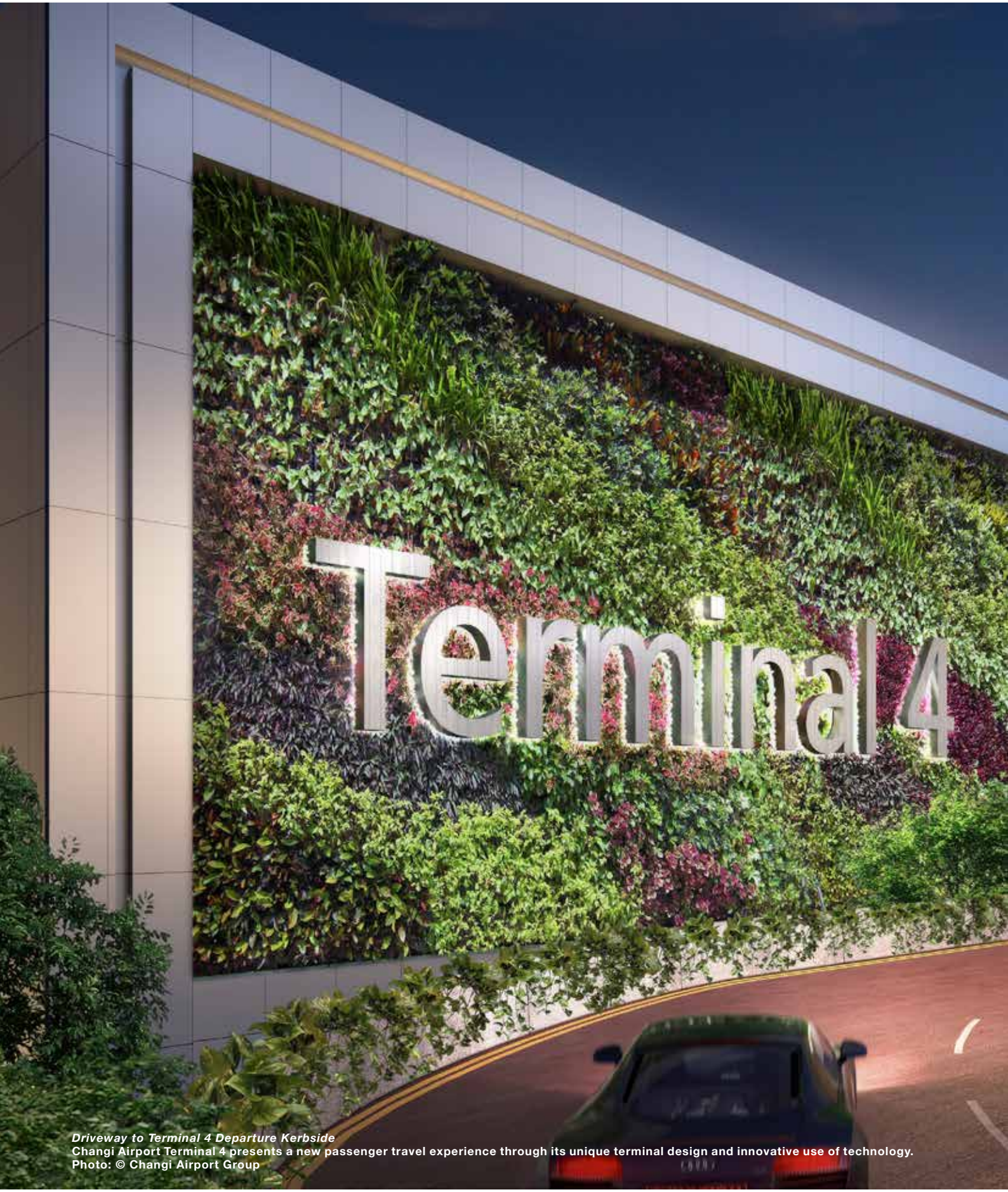

Driveway to Terminal 4 Departure Kerbside
Changi Airport Terminal 4 presents a new passenger travel experience through its unique terminal design and innovative use of technology.
Photo: © Changi Airport Group

Changi Airport Terminal 4
– Redefining passengers' experience

Self-service check-in kiosks and bag-drops
T4 will introduce self-service options on a large scale for check-in and bag-drop. In addition, the use of biometric technology will facilitate a faster and more seamless travel experience. Photo: © Changi Airport Group

On 5 November 2013, Singapore Changi Airport broke ground for its newest passenger terminal - Terminal 4 (T4). Following its three existing terminals, T4 aims to redefine passengers' travel experience, raise operational efficiency, as well as manpower productivity for the airport, airlines and airport agencies. When it opens in 2017, T4 will have the ability to handle 16 million passenger movements a year.

The terminal, which is being built on the site of the former Budget Terminal, will be two-storey, 25-metre-high building with a gross floor area encompassing 195,000 square metres.

Conceptualised by a design consortium led by SAA Architects Pte Ltd, with members including UK architecture firm Benoy Ltd, the design of T4 draws inspiration from an orchid petal. The terminal will introduce several new features for the first time, designed to enhance the passenger experience.

The main focal point of the building is a 300-metre long 'Central Galleria'. This is a glazed, open space that visually connects the departure, check-in, arrival and transit areas across the terminal. It will have a transparent wall concept, which will provide a view of the exciting amenities in the Transit Lounge from the Check-in Halls.

At the arrival hall, lush vertical landscaping and an impressive double-storey glazed façade will surround the passengers. The interior is dynamic, vibrant and colourful with feature lantern skylights illuminating the terminal. Gardens have been incorporated to enliven the airport interiors with green walls and an abundance of elegant tall trees growing beneath the natural light.

Inside the transit area, passengers will be treated to design motifs with elements reflecting local nature and culture. For example, some of the retail stores and dining areas will be designed to resemble a row of old Peranakan shophouses in Singapore.

Yeo Siew Haip, Managing Director of SAA Architects, explained the complexity of the large-scale project: "Since winning the project in mid-February 2013, the SAA-led Consortium worked hand in hand with Changi Airport Group (CAG) and Benoy to bring the design of T4 from concept to commencement of piling works on-site. SAA provided the Consortium leadership in managing concept refinement, stakeholder engagement, fast-track scheduling and value engineering."

"Finalising the overall design of T4 for the Main Contract Tender within the time frame we had is a feat in itself for the industry, especially with over 10 consultants and specialists collaborating intimately in the intricate work scope, keeping the project on schedule," added Yeo Siew Haip.

"Benoy has designed T4 to offer the ultimate in travel efficiency and comfort," explained Simon Bee, Global Director at Benoy. "The self check-in and bag drop facilities will allow travellers the flexibility to quicken their journey and will be implemented on a large scale for the first time within Changi Airport. The interior planning will help to soothe the travel experience even further by promoting visual transparency, allowing travellers to be visually connected throughout the terminal as they move through check-in all the way to boarding," he said.

Simon added: "The Benoy Team believed in bringing new thinking to the terminal design and creating an environment outside the traditional airport experience. Alongside the cutting edge technology and new concepts such as walk-through retail zones, we also wanted the design to reflect Singapore as a city, with abundant gardens, tall trees, skylights and heritage inspired detailing."

"SAA's role as lead consultant and architect is not unlike a music conductor in orchestrating all processes to bring the design of Terminal 4 at Changi to reality. With CAG and Benoy, we strive to create a unique T4 experience that pushes the boundaries and inspires the traveller like never before," said Yeo Siew Haip.

Yeo Siew Haip

Simon Bee

A terminal for fast and seamless travel

In line with its mission to provide higher operational efficiency, T4 will offer several fast and seamless travel (FAST) initiatives. These include self-service and automated options at check-in, bag drop, immigration clearance and departure-gate boarding. Self-service kiosks will be available at T4 throughout the day to allow passengers to check-in at their own convenience before their departures without the need to queue. T4's FAST initiatives are part of a global trend towards self-service options in airports around the world. They are particularly necessary in Singapore, which faces labour shortage in the ground handling and security sectors.

Another new feature in T4 will be a walk-through retail concept, which will allow passengers to do duty-free shopping for liquor, tobacco, cosmetics and perfumes before boarding their flights. In total, T4 will have a dedicated area of more than 20,000 square metres for shopping and dining.

Serving both full-service and low-cost carriers

In terms of floor area, the T4 building will be about seven times larger than the Budget Terminal. It will boast 17 contact stands for narrow-body aircraft and four for wide-body aircraft. These stands will come with aerobridges, increasing convenience and accessibility for passengers. Designed with flexibility in mind, T4 will be able to serve both regional full-service and low-cost carriers.

T4 will also have its own Ramp Control Tower to oversee and manage aircraft movements in the apron and taxiways around the terminal. This tower is needed to enhance the Changi Airport air traffic controllers' visual line of sight of aircraft parking stands and associated taxiways near the southern end of Runway 2. The 68-metre tall Ramp Control Tower will provide clearance to pilots on when they can push back from the gates, as well as give instructions on which taxiway to be used, before handing over communications to the Changi Air Traffic Control Tower.

Optimising manpower resources

In keeping with Changi Airport's passenger-centric model, T4 has been designed to provide ease of wayfinding and accessibility. The immigration and pre-board security screening areas will be centralised at the south end of the terminal, so as to create a clear single directional path for passengers towards their boarding gates.

Compared to the decentralised model, this reduces manpower requirements by improving deployment efficiency of immigration and security officers and removes the need

Retail zone in Departure Transit Lounge
Retail stores with double-volume shop fronts will offer an enhanced shopping experience. Photo: © Changi Airport Group

for additional equipment at multiple gate-hold rooms in the case of security screening. The coupling of both functions at the same location also frees up space for more passenger facilities.

While T4 is expected to handle mainly origin-destination traffic, a dedicated free airside shuttle between T4 and Terminal 2 will be provided to cater to passengers with onward connections on non-T4 airlines.

Ready for future growth

When it is completed, T4 will bring Changi Airport's total annual passenger capacity to 82 million. To support the terminal's operations, another 17 narrow-body and nine wide-body aircraft stands are being built at a land plot south of Terminal 3, in preparation for increased demand for aircraft parking space as air traffic continues to grow into the next decade.

Departure Boarding Pier
Relaxing seating areas set along a charming boulevard of trees at the Departure Boarding Pier. Photo: © Changi Airport Group

Unique cultural shop fronts in Departure Transit Lounge
Singapore's heritage is showcased in retail stores featuring facades of old Peranakan houses. Photo: © Changi Airport Group

A bridge across Airport Boulevard will be constructed to enable buses and other airside vehicles to move from T4 to these remote aircraft stands. To facilitate the smooth movement of passengers boarding aircraft at the remote stands, T4 will also house a centralised departure bus lounge with up to eight bus bays.

At T4, there will be up to 1,700 car parking spaces in two multi-storey car parks. Both car parks will be connected to the terminal via sheltered links. A regular free shuttle service between T4 and the other terminals will also be provided for the convenience of passengers and visitors.

The highly anticipated opening of T4 signifies to the world that Changi Airport is ever ready to open its doors for passengers to experience an airport that will transform the travel experience.

PROJECT DATA

Members of the consortium
- SAA Architects Pte Ltd - Lead Agency
- Benoy Ltd
- AECOM Singapore Pte Ltd
- Beca Carter Hollings & Ferner (SEA) Pte Ltd

Project Facts
Project location: Changi, Singapore
Developer: Changi Airport Group
Size: 195,000 square metres
Consortium Leader/Executive Architect: SAA Architects Pte Ltd
Concept Design Architect: Benoy Ltd
Interior Designer: Benoy Ltd
Completion: 2017

Arrival Hall
A centralised double-volume Arrival Hall gives passengers a sense of space in natural light, providing a warm Singapore welcome. Photo: © Changi Airport Group

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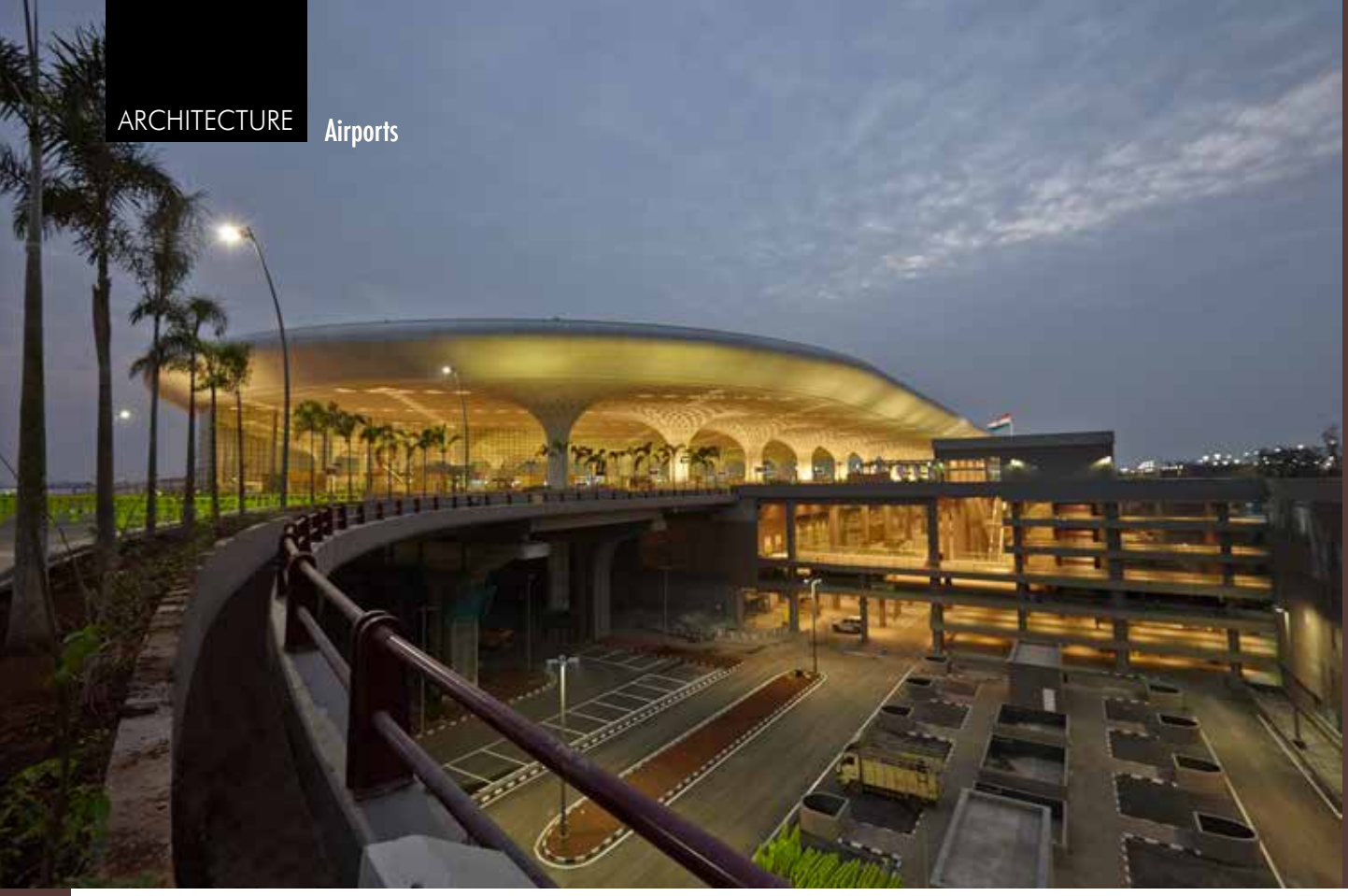


Mumbai Airport's stunning Terminal 2

GVK MIAL new integrated, state-of-the-art Terminal 2 at Chhatrapati Shivaji International Airport (CSIA) is an iconic mega-structure (measuring 4.4 million square feet) that will set global benchmarks in airport infrastructure development.

Featuring a highly compact design by New York based SOM (Skidmore, Owings & Merrill LLP), T2 can now handle 40 million passengers annually. Traversing across four-levels, the vertical and compact design of T2 integrating all operations (International, Domestic, Ground Handling, Security, Retail etc.) under one roof enables enhanced passenger servicing and operational efficiency of GVK CSIA.

The Rs 5,500 crore cost incurred by GVK in building T2 is lowest as compared to similar airport projects in India as well as across the world. GVK constructed the new T2 in the same location of present international terminal without shutting down India's busiest & land – locked city airport which is the most constrained airport in the world.

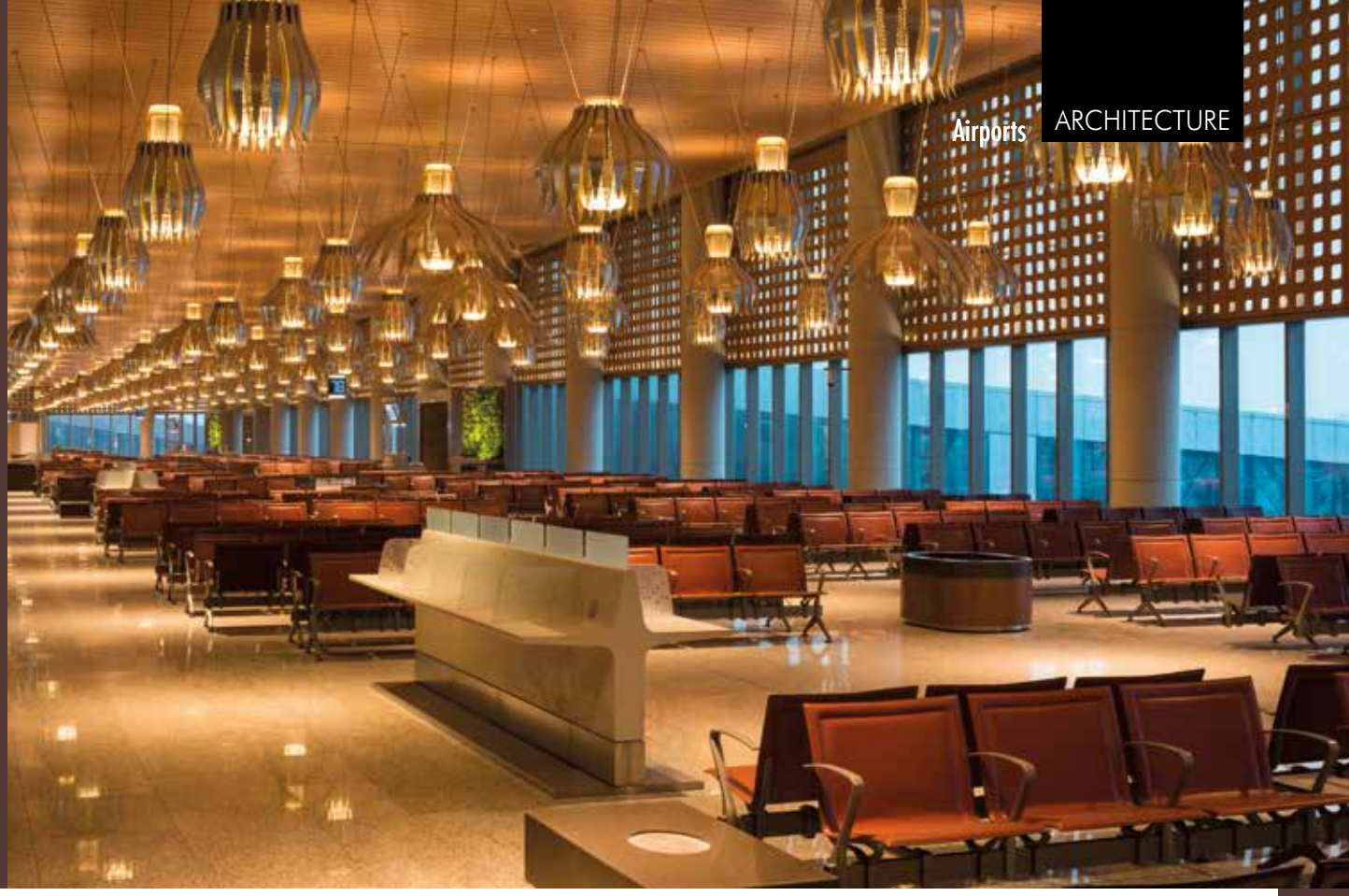
The new airport terminal will also be home to India's largest public art programme, in the form of a 3.2 km multi-storey Art Wall, illuminated by skylights, that has over 7000 pieces of artwork & artefacts from Maharashtra and also every region & corner of India. Titled Jaya He (Glory to India), it captures the expanse, depth and beauty of Indian art, craft & cultural heritage, while initiating the visitor into experiences that lie beyond & convey a distinctive narrative of India's incredible diversity, living in multiple centuries simultaneously.

Reaffirming Mumbai's status as a global economic city, Terminal 2 is the outcome of GVK's vision to make CSIA one of the world's best airports that consistently delights consumers, and being the pride of Mumbai & India. The new T2 built in four years, is an iconic global mega structure & India's first and most advanced vertical passenger terminal that integrates world class design, architecture, infrastructure and operational efficiency, with a rich infusion of Indian heritage & cultural character.

All international, and later, domestic passengers will enter the new Terminal Head House on the fourth level, that is accessed by a sweeping elevated road from the Western Express Highway in only 3 minutes. At the entrance, the lanes split, making room for wide drop-off curbs with ample space for departure rituals with passengers & their guests protected from Mumbai's heat & unpredictable monsoons, by the Head House roof that extends to cover the entire departure roadway. A 15-meter-tall cable-stayed glass wall — the longest in the world — opens to the soaring space of the check-in hall, with the transparent façade allowing accompanying well-wishers, to watch as their friends and family depart.

Once inside, travelers enter the warm, open, light-filled & monumentally large check-in hall, featuring 188 + 20 check-in counters, sheltered underneath the 11-acre long-span roof, supported by an array of only 30 mushrooming multi-story mega-columns. Small disks of colourful glass recessed within the canopy's coffers speckle the hall below with light, whose constellation of colours makes reference to The Peacock, India's national bird, and the inspiration for the airport. After check-in, 60 emigration counters, 124 security check positions, 41 travellators, 47 escalators & 73 elevators will efficiently & swiftly process passengers for boarding.

The common check-in hall leads to a retail hub for international travelers, while domestic passengers proceed down to Level Three along the spectacular palm and waterfall gardens to their own dedicated domestic retail hub. These commercial plazas, spread over a combined area of 200,000 square feet,



are centrally located at the junction of the concourses and the terminal core, to provide close proximity, to the 52 convenient departure gates for maximum passenger convenience.

Level 2 is dedicated for all Arrivals with 12 fully-automatic baggage-handling carousels & 72 arrival immigration counters, while Level 1 is designed for ground transportation.

Interconnecting light slots and multi-storey light wells ensure that light penetrates even into the lower floors of the 4-storied mega structure, acting as a constant reminder of the surrounding city and its landscape.

For the first time in India, the terminal also features an Airport Joint Control Centre that will house all stakeholders from security to airline officials & airport operations including to facilitate collaborative & speedy decision making.

Gold Lounge Bar

Silver Lounge

The design of Terminal 2 draws inspiration from India's national bird – The Peacock. It portrays the magnificent character of the White Peacock, representing flight, as well as rare beauty. The architecture of the new airport terminal quintessentially reflects India's proud heritage & draws on its rich culture -- it unmistakably & proudly presents a new contemporary India & its possibilities. Throughout T2, there are fixtures and details, such as 1000 chandeliers inspired by the lotus flower, a Diya curtain with 10000 diyas waiting to welcome international travelers and the check in hall which is inspired by 1000 white peacocks in the sky.

Reflecting GVK's environment stewardship, Terminal 2 was built to be highly energy & water efficient. Sewage recycling, water recycling & rain water harvesting technologies will contribute to a 20 percent reduction in water use, over & above the Leeds baseline. Using a high-performance glazing system with a custom frit pattern, T2 achieves optimal thermal performance and mitigates glare. Perforated metal panels on the terminal's curtain wall filter the low western and eastern sun angles, creating a comfortable day-lit space for waiting passengers, and responsive daylight controls balance outdoor and indoor light levels for optimal energy savings. Combined with strategically-placed skylights throughout the check-in hall, these will reduce T2's energy consumption by 23 percent. The terminal also has a Level 2 accreditation on carbon management by ACI.

The terminal features a multi-level car park with the ability to handle 5200 cars making it one of the largest in the country. The car park is covered with lush landscaped gardens, providing a scenic first view for arriving & departing passengers.

The new integrated Terminal 2 commenced International operations from 12 February 2014.

T2 highlights in numbers

- Spans across 4.4 million square feet area
- Dedicated 6-lane, 3.2 km elevated expressway shortening travel time to T2 from Western Express Highway
- 208 Check-in counters as well as 23 domestic & 30 international security pedestals
- 60 emigration counters on departure as against just 38 now and 72 immigration counters on arrivals as against just 40 now
- 52 boarding bridges compared to 20 now (Domestic + International)
- 10,900 seating capacity, 102 toilets, 161 elevators, escalators, travellators
- Retail footprint of 200,000 square feet
- Lounges, 1 Day hotel & 1 Transit hotel
- 10 Baggage carrousels, expandable to 14
- Automated baggage system handling 9600 bags per hour
- 90 percent passengers can be served by aerobridges
- 200,000 square feet landscaped garden
- Flexible design for facilities to adapt to change in traffic pattern & peak time; domestic & International can thus share same facilities at different times
- LEED Gold certified

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Chhatrapati Shivaji International Airport

KERAFLEX MAXI S1 and MAPELASTIC: a winning combination for a grandiose international project in Mumbai, India.

Although India is going through a period of sustained, rapid growth, it is also a country full of contradictions, and in particular the coexistence of rural areas with large, technologically-advanced cities.

Eight hundred and thirty three million people out of total population of one billion two hundred million people live in rural areas, while there are also over-populated cities such as Mumbai, Kolkata, Chennai and New Delhi.

With these characteristics, India is one of the few areas in the world where, when we talk about projects, it may easily be an entire city! Within the framework of a process to construct new infrastructures and increase the capacity of existing ones, the Indian government has decided to upgrade or rebuild more than 50 airports.

There are 25 international and 115 domestic airports in the country. The Airport Authority has made plans to modernise 35 airports. A further investment of 75.5 million dollars has also been programmed for three airports in the north-east.

The Best Products to Lay 160,000 square metres of Granite

The airport in New Delhi was completed in 2011 when Mapei India had still not been created. In spite of this, shortly before Mapei India was actually founded, Mapei still managed to win a contract for the Mumbai Airport International Terminal, just a few kilometers from Mumbai City; a large job which involved the laying of around 160,000 square metres of Brazilian Santa Cecilia granite slabs measuring 60X60 cm. To lay the granite flooring, the client specified the use of high performance adhesive suitable for large sized natural stone slabs and for flooring subjected to intense traffic. For this task, after various tests in the Mapei Central Laboratory in Milan, KERAFLEX MAXI S1 high performance adhesive was singled out as the ideal product to lay the flooring. This is a high-performance, deformable cementitious adhesive with no vertical

Mumbai airport upon completion of work.

slip for ceramic tiles, particularly suitable for laying large porcelain tiles and natural stone slabs (thickness of adhesive from 3 to 15 mm). To guarantee that all the laying operations were carried out correctly, it was agreed with the contractor, Shah Granites, that Mapei technicians would train a team of local floor installers directly on site for one week before commencing laying. Accordingly Mr Wong Chun Fatt from Mapei Far East came to India and conducted the training for a week at the project site. KERAFLEX MAXI S1 was used to lay the granite in the enormous lobby in the new terminal and in the terminal bathrooms. Apart from the flooring, it was also used to bond the granite wall covering. Before laying the stone, EPORIP two-component epoxy adhesive was used to repair the cracks in the substrate. Once this had been done, the surfaces were smoothed over with ULTRAPLAN ECO self-levelling, ultra rapid-hardening smoothing and levelling compound with very low emission of volatile organic compounds (VOC) applied in layers from I to I 0 mm thick. KERALASTIC T two-component, high-performance epoxy-polyurethane adhesive was used to lay granite over the steel surfaces in the service lifts and elevators. Laying of the granite slabs was completed by the all-important grouting of the joints. The product chosen for this operation was KERAPOXY anti-acid epoxy grouting mortar and adhesive for laying and grouting ceramic tiles and stone (minimum width of joints 3 mm). MAPELASTIC two-component flexible cementitious mortar was used to waterproof the water bodies around the structure, a product particularly recommended to form highly flexible, protective waterproof coatings on concrete structures prone to cracking. In this specific case, because the surfaces are particularly stressed, MAPELASTIC was reinforced with MAPENET 150 alkali-resistant, 4 x 4.5 mm glass fibre mesh, for reinforcing protective waterproofing layers, anti-fracture membranes and cementitious smoothing and levelling layers.

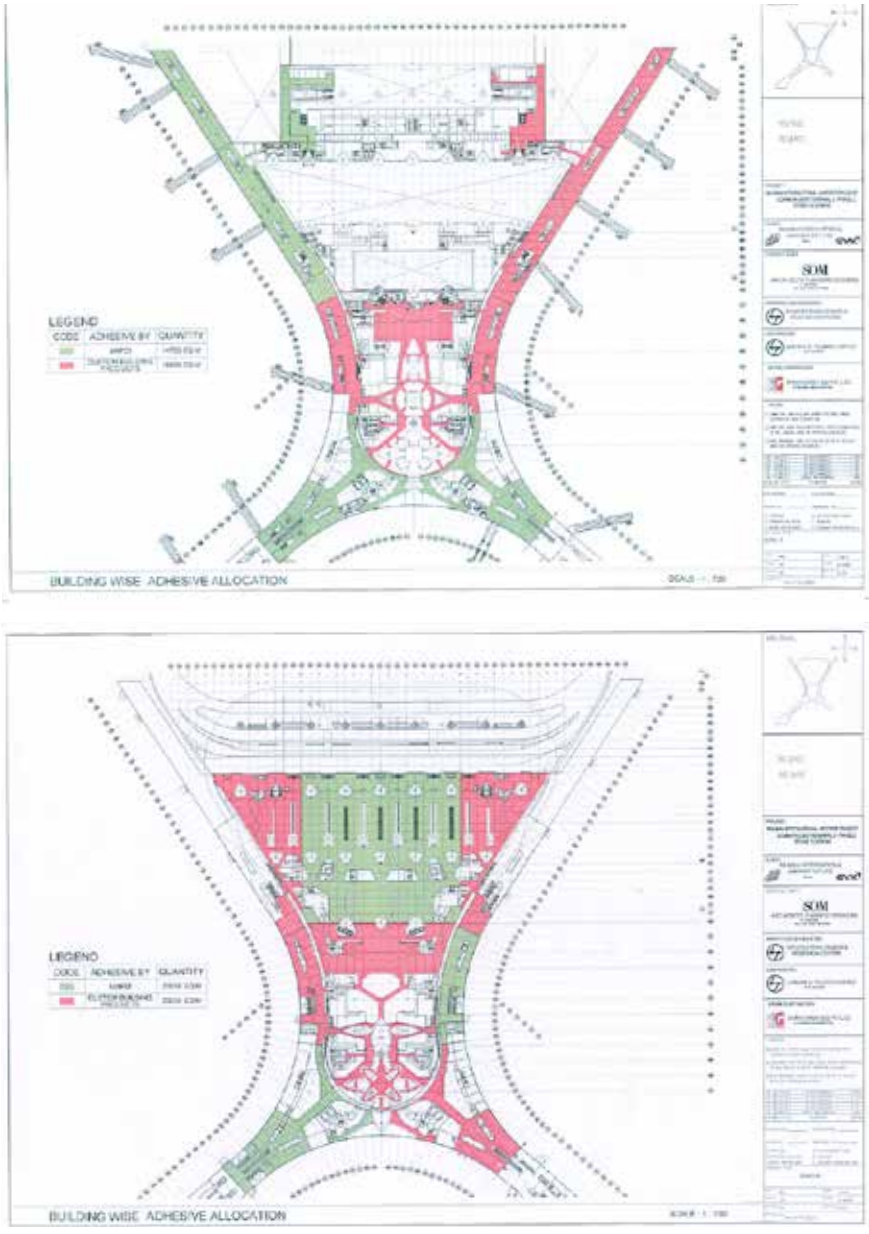
For more information, e-mail mapei@mapei.com.sg.

Mumbai airport after completion.

Article source: Realtá Mapei International no. 45/2013

KERAFLEX MAXI S1

Mapei Products
Preparation of the substrates: Eporip, Ultraplan Eco
Laying and grouting of granite slabs: Keraflex Maxi S1; Keralastic T; Kerapoxy
Waterproofing: Mapelastic, Mapenet 150



A plan view of two of the levels at the airport. Mapei products were used in the areas highlighted in green.

In these photos: Brazilian Santa Cecilia granite, bonded with KERAFLEX MAXI S1 and KERALASTIC T, was used for the flooring in the airport.

PROJECT DATA

Project: Chhatrapati Shivaji International Airport
Location: Mumbai, India
Period of Intervention: 2011
Intervention by Mapei: laying granite slabs and waterproofing of the water bodies
Client: Mumbai International Airport Private Limited - MIAL - (a Joint Venture between GVK India & Airport Authority of India)
Designers: Owings & Merrill LLP, New York (USA)
Contractor: Larsen and Toubro Ltd, Mumbai
Laying Companies: Shah Granite, Plus Systems, Waterman, SMG Inter Decor, Rajasthan Marbles, AES
Mapei Technical Assistance: Enrico Geronimi (Mapei SpA), Sandeep Shinde (Mapei India) and Wong Chun Fatt (Mapei Far East)
Mapei Co-ordinators: Lorenzo Pastore (Mapei SpA), Abhijit Dutta, Meher Mukherjee, A. Deshpandey (Mapei India)


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Photo Credit: Foster + Partners

Foster + Partners and FR-EE Fernando Romero to design new airport for Mexico City

Foster + Partners, FR-EE (Fernando Romero Enterprise) and NACO (Netherlands Airport Consultants) has won the international competition to design Mexico City's new international airport. Mexico's President Enrique Peña Nieto made the announcement in the presence of the Governor of the State of Mexico, government ministers, the Mayor of Mexico City.

At 470,000 square metres, it will be one of the world's largest airports. Conceived with Foster + Partners engineering team, the project revolutionises airport design – the entire terminal is enclosed within a continuous lightweight gridshell, embracing walls and roof in a single, flowing form, evocative of flight.

Designed to be the world's most sustainable airport according to the architect, the compact single terminal uses less materials and energy than a cluster of buildings. The design ensures short walking distances and few level changes, it is easy to navigate, and passengers will not have to use internal trains or underground tunnels – it is a celebration of space and light. Flexible in operation, its design anticipates the predicted increase in passenger numbers to 2028 and beyond, and its development will be the catalyst for the regeneration of the surrounding area. The airport is planned on a new site with three runways, and an expansion plan up to 2062 with an eventual six runways.

With spans in excess of 100 metres, three times the span of a conventional airport, it has a monumental scale inspired by Mexican architecture and symbolism. The maximum span internally is 170 metres. The lightweight glass and steel structure and soaring vaulted roof are designed for Mexico City's challenging soil conditions. Its unique pre-fabricated system can be constructed rapidly, without the need for scaffolding – the airport will be a showcase for Mexican innovation, built by Mexican contractors and engineers.

The entire building is serviced from beneath, freeing the roof of ducts and pipes and revealing the environmental skin. This hardworking structure harnesses the power of the sun, collects rainwater, provides shading, directs daylight and enables views – all while achieving a high performance envelope that meets high thermal and acoustic standards. The LEED Platinum design works with Mexico City's temperate, dry climate to fill the terminal spaces with fresh air using displacement ventilation principles. For a large part of the year, comfortable temperatures will be maintained by almost 100 percent outside air, with little or no additional heating or cooling required.

Lord Foster said: "Stansted Airport's reinvention of the conventional terminal in the 1990s was emulated worldwide – this breaks with that model for the first time. It pioneers a new concept for a large-span, single airport enclosure, which will achieve new levels of efficiency and flexibility – and it will be beautiful. The experience for passengers will be unique. Its design provides the most flexible enclosure possible to accommodate internal change and an increase in capacity. Mexico has really seized the initiative in investing in its national airport, understanding its social and economic importance and planning for the future. There will be nothing else like it in the world."

PROJECT DATA

Project: Mexico City New International Airport
Location: Mexico City, Mexico
Client: Mexico's Secretariat of Communications and Transport (SCT)
Appointment: September 2014
Construction Start: 2015
Site Area: 4,800 hectares (overall masterplan)
Area (Gross): Terminal Building: approximately 470,000 square metres
Height: 45 metres at its highest point
Number of Floors: Varies between 2 and 4 levels
Structure: Composite deck slabs and steel columns internally; Steel grid shell, externally.
Facilities: Fully working airport terminal with passenger processor space, flexible retail area, airline lounges, domestic and international boarding gates, baggage handling, customs, passport control, airport services, mechanical plantrooms and control rooms, control tower, operations centre, car parking.
Parking facilities: 5,000 parking bays
Materials: Structure in steel and concrete, cladding-glazing and painted aluminium panels. Emphasis on Mexican provenance and sustainably-sourced materials

Photo Credit: dbox_Foster + Partners

Photo Credit: dbox_Foster + Partners

House of Memories at Holland Grove Terrace

The House of Memories at Holland Grove Terrace in Singapore, designed by A D Lab Pte Ltd, won an Honourable Mention in the Residential Projects category at the 14th SIA Architectural Design Awards in 2014. The house was cleverly transformed into two semi-detached houses in order to make their plot of land sustainable for the family's next generation. Text and photos courtesy of A D Lab Pte Ltd.

Having constructed their house themselves over 25 years prior, the clients were somewhat reluctant to tear down the unassuming bungalow that had been a repository for so many memories throughout the years of raising their family. In order to make their plot of land sustainable for the next phase of their lives, however, they decided to replace the existing house with two semi detached houses where their eldest son and his family could be next to them as well as a separate apartment for their youngest son. The designers at A D Lab were sensitive to the emotional bond the clients had to their Holland Grove home and proposed a design that echoed both in form and spatial relationship the existing bungalow in order to facilitate the transference of experience and collective memory from the old to the new houses. After discussions with the owners, the architects found that many of the associations they had to the existing house were related to its double-pitched roof form, as well as to its bright and open spaces that gave the feeling that the house was sitting in the gardens. With the new design, the architects retained the concept of the original roof form with one pitch at the front and one pitch along the side of the development. These pitches were then related to the entrance of the parent's house at the front left side of the lot, and the side pitch defined the son's house along the right side of the property.

The front pitch in the parent's house encloses a two and a half storey living room. This lofty living space anchors the house and serves as central core that visually links all the levels of the house. The youngest son's bedroom and suite is placed on the upper level of the parent's house. In order to retain a sense of privacy, this zone is somewhat separated from the rest of the

house, however the entrance area of the suite is vertically connected to the rest of the house through a balcony that overlooks the bright and airy living room below.

The proportion of the overall development is elongated in the new design and the designers used a pronounced expression of the architectural element of the line of the pitch and roof eave and stretched it across the frontage of both houses in order for the two semi detached houses to read as one large home with two distinct sides. This strong linear expression visually ties the houses together yet allows them have their individual architectural expression. In an effort to surround the houses with gardens as well as to assist with cross ventilation and light into the depth of each house, A D Lab designed a central courtyard and water feature that wraps itself between the two semi detached houses. The designers saw that it was critical to the family's communication to create openings in the parti wall that typically separates two semi-detached houses. They received permission to allow voids in the wall in significant locations where there could be visual connectivity between the main spaces of the houses, while maintaining privacy in others. The permeability of the central courtyard between the two units and their parti walls as well as the cutting out of several other courtyards throughout both houses allows for the strong relationship of the houses with the gardens, the environment, as well as between the two houses.

PROJECT DATA

Project: House of Memories at Holland Grove Terrace
Architect: A D Lab Pte Ltd
Project Team Members: Darlene Smyth, CJ Foo
Builder/Construction Company: Heng Choon Construction Pte Ltd
Civil and Structural Engineering Firm: Grace Consultants
Site Area: 753.7 square metres
Total Floor Area: 974.32 square metres
Photographer: Derek Swalwell

Specifications:
Sanitary items: Duravit, Geberit, Zucchetti, Hansgrohe
Light fittings: M-LITE, Artemide, TITAN
Decorative lights: MOOOi, Penta
System Furniture (master bed room wardrobe, Children bedroom wall cabinets): Novamobili
Kitchen Specialist: W atelier
Furniture: Minotti

Chiltern House

Chiltern House, designed by WOW Architects & Warner Wong Design, won a Design Award at the 14th SIA Architectural Design Awards in 2014, under the Category: Residential Projects. Text and photos courtesy of WOW Architects & Warner Wong Design

The spaces in this family home on Chiltern Drive in central Singapore were crafted like a garment, woven around the needs and desires of its inhabitants. The home aspired to be deeply rooted, connected to the surrounding environment, the history of its development, as well as the family's lifestyle.

The house was constructed as a single monolithic concrete structure. The woven steel reinforcement and raw timber formwork into which the concrete was cast have imprinted the process of building into its surfaces, with rugged lines in the concrete and hints of steel reinforcement in the walls and ledges. As the early morning sun casts shadows across the textured horizontal bands left behind in the concrete where the timber formwork once was, the memory of the construction process itself marks the passing of time and reminds the family of the effort, desire, and realisation of their dream.

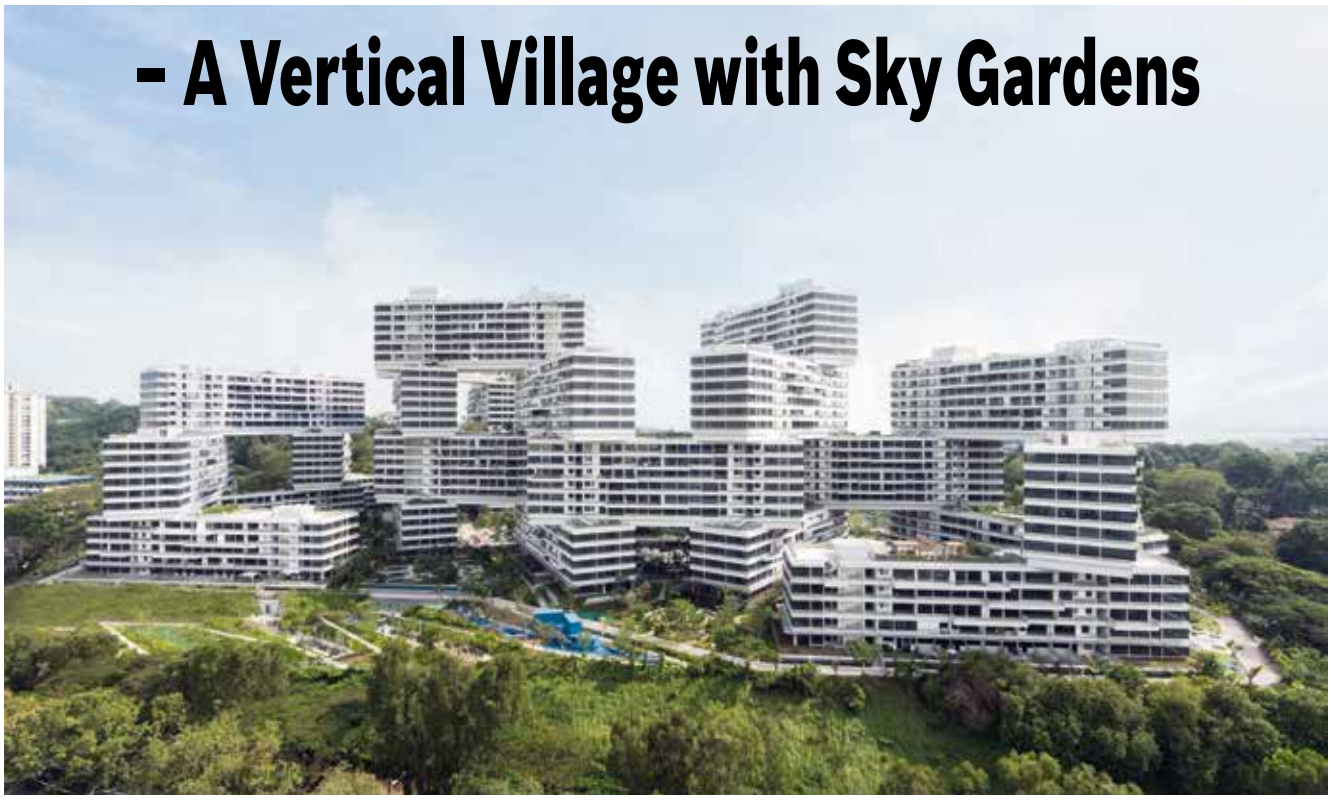
The spaces within and around the house were designed for each family member to enjoy their own privacy and commune with nature, as well as spaces where they could meaningfully come together in the creation and continuation of family rituals around meals, greetings, and homecomings. The house is articulated around a square geometry in plan, but the spatial arrangement within this straightforward framework is a complex interplay of large and deep spaces and connections that stretch across the length of the house in various directions. These elongated rooms draw the eye across them, at times relating to the views of the garden, across extended windows that skirt the skyline and horizon or to focus the exaggerated perspectives on select elements within a room. These visual connections within the rooms as well as from space to space help to unite the inhabitants and make them aware of each other's movements within the house as well as strongly link the house to its surrounding environment.

The living and dining rooms are connected in one continuous space with a swimming pool at one end and a rear garden at the other. Along the length of the room, a low bay window ledge cast into the folds of the wall and a long horizontal window opening provide an intimate and direct connection to the landscape, as well as casual seating that can comfortably accommodate one or many people.

Similarly, the expansive kitchen island that extends across the tall and grand kitchen runs parallel to a broad view of the rear garden and makes the kitchen a bright and pleasant room that is just as much a social space as a working area. With this architectural language of deep spaces and extensive windows, dramatic linear vistas of the gardens that surround the house are framed. The views to the greenery provide a sense of serenity and reflection to the inhabitants and ground them to their environment. The culmination of these views occurs in the master bedroom that runs across the entire front façade of the top storey with a singular horizontal opening across its frontage. This broad window takes in a spectacular and uninterrupted view of the suburban skyline beyond.

Although the house was designed as an integrated experience of the architecture, interior and landscape design, each discipline has its unique expression and concept; the architecture with its rugged concrete aesthetic and expressed construction process, the landscape with four levels of distinct solutions for different spatial objectives using a variety of tropical landscape strategies, and the interiors with a tapestry of personal artifacts that subtly convey the history of the family.

The Interlace by OMA / Ole Scheeren – A Vertical Village with Sky Gardens



The Interlace in Singapore is a large-scale, 170,000 square metres residential development by CapitaLand Singapore and Hotel Properties Limited. Designed by OMA / Ole Scheeren, The Interlace generates an extensive network of private and shared social spaces in a radical reinterpretation of contemporary life in a community. Instead of following the default typology of housing in dense urban environments – clusters of isolated towers – the design turns vertical isolation into horizontal connectivity and reinstates the notion of community as a central issue in today's society.

31 apartment blocks, each six storeys tall, are stacked in a hexagonal arrangement around eight generous courtyards. The interlocking blocks create a multitude of shared outdoor spaces, forming a dramatic topography of inhabitable terraced gardens across the stepped volumes. Partly resting, partly floating, the blocks hover on top of each other to form an expressive "interlaced" space that connects the individual apartments with an accessible and inclusive community life. The design generates a multiplicity of qualities and choices for its inhabitants and gives a sense of multi-layered richness and freedom of possibilities for living.

"The Interlace opens a space of collective experience within the city and reunites the desire for individuality and privacy with a sense of togetherness and living in a community," said architect Ole Scheeren. "Social interaction is integrated with the natural environment in a synthesis of tropical nature and habitable urban space. The design generates a multiplicity of qualities and choices for its inhabitants – a sense of richness and freedom in the choices you make," he added.

Extensive landscaping & green roofs

Sustainability features are incorporated throughout The Interlace through careful environmental analysis and integration of low-impact passive energy strategies. A series of site specific environmental studies, including wind, solar, and daylight analysis, were carried out to determine intelligent strategies for the building envelope and landscape design. As a result, the project has been awarded the Universal Design Mark Platinum Award and Green Mark Gold^{PLUS} Award from Singapore's Building and Construction Authority as well as the prestigious inaugural Urban Habitat Award conferred by the Council on Tall Buildings and Urban Habitat (CTBUH). It was also a finalist in CTBUH's Asia & Australasia's Best Tall Building Award category.

Mr Eng Tiang Wah, Vice President of Design Management (Residential), CapitaLand Singapore, said: "We envisaged The Interlace as an iconic urban habitat of the future, and successfully transformed it into one with its breathtaking architectural design, creative use of spaces, strategic positioning of the apartments and facilities, universal design features and beautiful sculptures by famous artists. Besides providing spaces for private retreats and residential living, the development also facilitates social interaction and community-bonding with its communal and multi-generation facilities."

The landscape design capitalises on the generous size of the eight-hectare site and further maximises the presence of nature. By stacking the apartment blocks, the design generates a multiplication of horizontal surfaces populated by extensive roof gardens and landscaped terraces that in aggregate provide

112 percent green area - more than the size of the unbuilt site.

Water bodies have been strategically placed within defined wind corridors, which allow evaporative cooling to happen along wind paths, reducing local air temperatures and improving the thermal comfort of outdoor recreation spaces in strategic micro-climate zones.

Traffic and parking is accommodated in two layers below the landscaped ground level. A large number of open-air voids allow light and air to the semi-sunken and fully naturally ventilated parking deck, creating areas of lush vegetation and trees below ground and connecting these spaces visually and through planting to the courtyards above. All apartments receive ample levels of daylight throughout the day while the unique massing of the project provides a sufficient level of self-shading in the courtyards which helps maintain comfortable tropical outdoor spaces year-round and continuous usage of the courtyards and their communal functions. Extensive balconies and protruding terraces form a cascading vertical landscape across the facades and further connect the green roofs and shared public terraces between the building volumes. Overall, the project appears not only surrounded by the tropical vegetation but embedded within it.

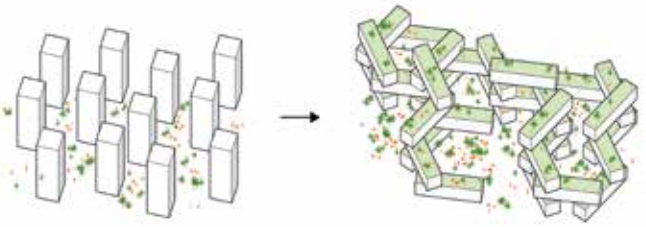
Space

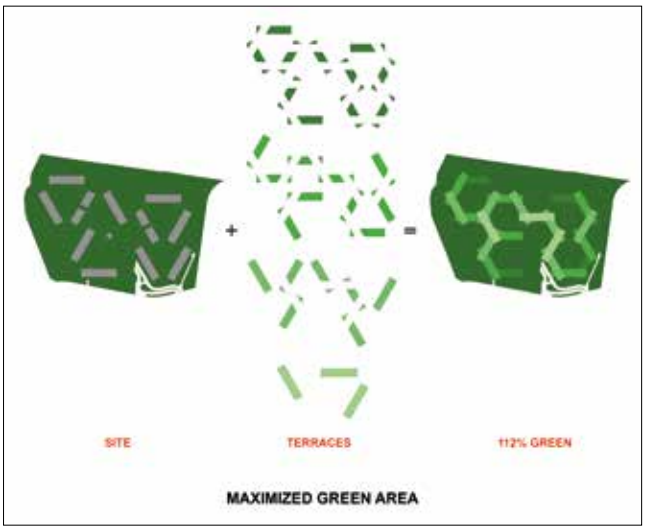
The Interlace provides 1,040 generous residential units of varying sizes that are reasonably priced. The unusual geometry of the hexagonally stacked building blocks creates a dramatic spatial structure populated by a diverse array of activity areas. The blocks are arranged on four main 'Superlevels" with three 'peaks' of 24 storeys. Other Superlevel stacks range from 6-18 storeys to form a stepped geometry, resembling the dramatic topography of a

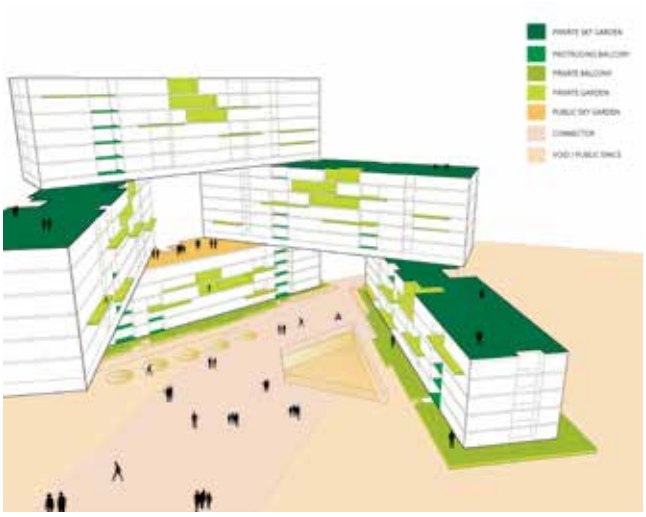
landscape more than a typical building. Multi-storey openings allow light and air to weave into and through the landscape of the courtyards.

Eight expansive courtyards and their individual landscapes are defined as the heart of the project and form distinct spatial identities. Each courtyard, spanning a distance of 60 metres across and extending further through the permeable interconnections, possesses a specific character and atmosphere that serves as a place-maker and spatial identifier. The primary pedestrian route through the project leads residents from the main entrance through and to the courtyards as primary points of orientation and identification – you live in a courtyard, a space, rather than a building or an object. Pedestrian circulation is grouped and bundled according to the density of residents around each courtyard in a central 'connector'. A system of secondary footpaths brings residents from the connector to the private front doors of their homes.

The notion of community life within a contemporary village is emphasised throughout the project by an extensive network of communal gardens and spaces. A variety of public amenities are interwoven into the landscape, offering numerous opportunities for social interaction and shared activities integrated with the natural environment. A Central Square, Theatre Plaza, and Water Park occupy the more public and central courtyards and contain numerous shared amenity areas such as a clubhouse, function and games rooms; theatrette, karaoke, gyms, and reading rooms; and a 50 metres lap pool and sun deck, family and children's pools. The character of a vertical village embedded in a rich landscape of activities and nature is evident throughout the project. Elevated roof terraces and sky gardens extend outdoor space on multiple levels with views above the tree line to the surrounding courtyards, parks, sea, and city. The diversity of the various offerings and atmospheres of natural environment encourage social interaction with the freedom of choice for different gradients of privacy and sharing, contributing to the overall sense of community.







PROJECT DATA

Project: The Interlace by OMA / Ole Scheeren
Location: Alexandra Road / Depot Road, Singapore
Gross Floor Area: 170,000 square metres (1,829,864 square feet)
Client: CapitaLand Singapore
Developer: Joint development by CapitaLand Singapore and Hotel Properties Limited
Design Architect: OMA, designer and partner-in-charge Ole Scheeren (now at Buro Ole Scheeren)
Architect of Record: RSP Architects, Planners & Engineers Pte Ltd., Singapore
Structural Engineer(s): T.Y.Lin International Pte Ltd
MEP Engineer: Squire Mech Pte Ltd., Singapore
Landscape: OMA (Concept/SD) / ICN Design International Pte Ltd., Singapore
Lighting: Lighting Planners Associates (S) Pte Ltd., Singapore
Quantity Surveyor: Langdon & Seah Singapore Pte Ltd.
Acoustics: Acviron Acoustics Consultants Pte Ltd., Singapore
Main Contractor: Woh Hup (Private) Limited, Singapore
Photos by Iwan Baan

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Setia Corporate Headquarters transforms roof into garden

The Setia Corporate Headquarters, located in Setia Alam, Shah Alam at Selangor in Malaysia, is state-of-the-art green building incorporating high performance features of green architecture to reflect SP Setia's ability to provide a positive response to the environment. The roofs of the tower and Annexe building are covered with turf and landscaped to provide a charming view as well as an open air function space.

Formal entrance to the Setia Corporate Headquarters.

Parasol and columns

S P Setia is one of the largest real estate developers in Malaysia. Their new large venture, Setia Alam is located in Shah Alam, a city on the western border of Selangor. In these approximately 5,000 acres, S P Setia decided to build their headquarters on a four-acre plot of land. This promoted the idea for a very formal design approach, to emphasise the company's social commitment to Malaysia's national development and to establish itself in this new city.

The building was designed throughout according to state-of-the-art green building standards and incorporating high performance features of green architecture to reflect SP Setia's ability to provide a positive response to the environment. At the conceptual phase, the Persiaran Setia Alam to the south and the large rainwater catchment pond on the east side played an important role in determining the design decisions.

The southeast facing façade was developed with special care to maximise public connectivity from a distance. Nine columns rising 40 metres lift the building like a parasol into the sky, translating classical Greek architectural language into the Malaysian context. A large, shallow water body at the ground level makes the building look almost as it is floating, while also honouring the importance of rain in this part of the world.

The avoidance of any typical boundary demarcations on the eastern flank, together with physical and visual links with the rainwater catchment pond and the surrounding landscape, endows the building with a certain humility without downplaying its actual identity.

Green architecture

The façades facing north, east and south comprise double glazing curtain wall with full height low-E glass double glazed curtain walls to allow for optimal daylight penetration with minimal solar heat gain and glare. The west-facing façade is a reinforced concrete wall with minimal openings. Building services are located on the western façade with minimum openings to minimise heat gain, thus reducing reliance on mechanical cooling.

The roofs of the tower and annexe building are covered with turf and landscaped to help minimise solar heat gain. Furthermore, the roof gardens, which cover more than 25 percent of the rooftops, provide the staff with beautiful views out as well as a break-out space. The roof garden on the annexe building also acts as a multi-function space for cocktail parties and dinner parties.

The building uses energy very efficiently. The design stage simulation shows the figure at 96.242 kW/m^2/year, which places it among the very few building in the country that is below 100kW/m2/year. The building envelop was designed to enhance the overall thermal performance of building envelop thus reducing the overall cooling load requirement to achieve an OTTV of 36.94 W/m^2.

The use of sustainable materials was prioritised throughout the building. Low VOC paint was used throughout the building, and low VOC wallpaper on selected walls. Certified green adhesive with low VOC content adhesives were prioritised for the laying of low VOC carpets, wallpaper, etc. Certified green laminates were used for built-ins. Where possible, office

Nine columns rising 40 metres lift the building like a parasol into the sky.

View of the colonnade from the sales gallery.

Grand staircase by the sales gallery.

furniture from the previous headquarters was reused in the new building to reduce wastage.

An auto sensor controlled lighting strategy, an auto condenser tube, water efficient fittings with WEPLS label and a rainwater harvesting systems are some of the other sustainable elements of the building. The building also uses indoor physical environmental strategy. General open plan work stations with clear glass panel partitions 1m from floor level allow unobstructed views across open space whilst external views are shared by all. This also helps cut down on the need for artificial lighting. Managerial offices face the open plan work stations with floor to ceiling partition to allow natural light penetration from the open office while allowing close supervision and collaboration conducive to efficient communication and productivity.

View of the tower from the roof garden of the annexe.

Curtain wall, lush green pockets and pedestrian bridge linking the HQ and Setia City Mall.

Artificial Turfing

Landscaping design and rooftop garden

The overall landscape concept reflects the objective of creating a lush green forest-like landscape envelop for the iconic building that incorporates a large pond adjacent to the building site. Once the plantings mature fully, the building will appear as if it is emerging from a forest.

An internal courtyard on the eighth floor provides a tranquil space for contemplation. The focal point of the courtyard is a reflective pool with an island in the centre, which has a black granite bench under two trees. The island is set against a water wall that falls from a height of 8 metres and runs down a stainless steel cladding.

The roof of the Annexe was transformed into a garden to provide a charming view out for the main building as well as an open air function space. The roof garden also has a sustainable role as the layer of zoysia turf with its 300mm depth of soil mix plus the nor-drain drainage layer; provide good insulation from solar heat gain.

PROJECT DATA

Project: Setia Corporate Headquarter
Location: Setia Alam, Shah Alam in Selangor, Malaysia
Client: Bandar Setia Alam Sdn Bhd
Architect: ArchiCentre Sdn Bhd
Collaborating Architect: Shatotto
C&S Engineers: Tylin International Sdn Bhd
M&E Engineers: SSP (M&M) Sdn Bhd
Quantity Surveyor: Baharuddin Ali & Low Sdn Bhd
Contractor: Santarli Sdn Bhd
Interior Designer: Artwork Interiors Sdn Bhd
Landscape Architect: LandArc Associates
Roofing for Tower: RC flat roof with artificial turfing
Roofing for Annex: RC flat roof with water feature (fountain), grass turfing and activity deck
Completion: 10 February 2014
Photographers: H.Lin Ho and Khan

The landscape design was created to be sustainable. All water features utilise rainwater. The rainwater is collected at the respective levels and recycled into the water feature. The plants are watered using harvested rainwater. Local species of plants or other tropical plants were selected to ensure that they thrive with minimal maintenance and use of resources.

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Villa Ronde

Villa Ronde is an experience in term of integration in the landscape with very ecological considerations. A former hill has been recreated by the sea, in which a house with its private museum. This architecture is thought from the wind, the light, thermical exchanges, and the sea. A rocky cliff comes out in the sea very windy north oriented. The idea is to find a shape gliding in the wind without angles. The facades have its role of displaying the light in the building by big or small holes for protection, lighting, and panoramic views. On west side, those holes are combined with a double façade, which prevent from over heating problem, and strong winds. On north side, there is no double façade, just a single one were the light is more necessary.

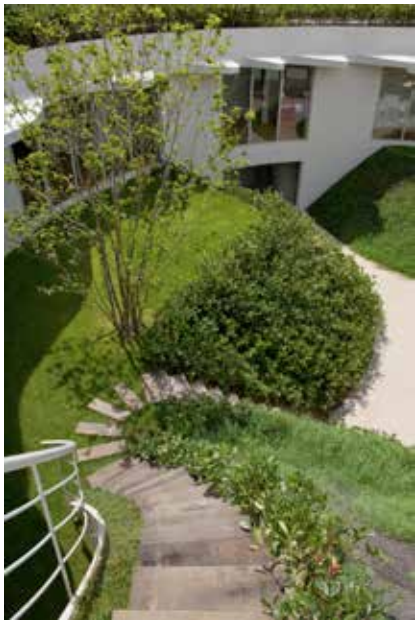
In the centre, a courtyard receives the south light and displays it into the building. The circle is very practical as it fits the cliff as well as to make a sort of panoramic tower reminding the old fortress by the sea from were you can see without being seen. The circle is also a fundamental intimate shape. Circulations are fluid, free multiples, all the rooms are connected as the house itself becomes a wandering place, longing for the sea.

The colour of the coastline gives the colour to the architecture. The idea is to to discroll the landscape throughout the house as if the house was a magic box. This façade is focusing on the landscape and let it come into the architecture. The building is enveloping the people though the architecture, and developing the panorama around it.

This house has two parts:
- On the east side, the principal apartment near the kitchen, dinning room, pool, spa.
- West side, guest rooms communicating to the roof by exterior stairs bringing them to the roof and the pool. The idea is to emerge from the earth in a place were you feel alone with the sea. The exhibition place is a wandering one around the courtyard looking at the sea.

This place hidden in a hill gives at the same time a good thermic balance. A bio-climatic architecture takes part of all aspects of a place. In all the surroundings, the house circulates in the ground for thermical exchanges, for a natural ventilation and gives a real natural air-conditioning system. At the same time, in the floor, circulates water warmed by thermic panels in winter and cold water in summer. 500 square metres of solar panels are positioned on the rooftop, not visible from anywhere. The pool and its 80 cubic metres of water give a good thermic weight as well. The garden roof of 40cm thick earth gives a very effective insulation. The inner garden makes a convection system as the heat goes up and attracts fresh air.

The result is an architecture half underground. It is not built on the hill but from the hill seems to grow the architecture. It gives the impression that we are out from the world with unique views to the sea. The materials are also well chosen. The flooring is made for bare feet, and the surrounding of the pool and the pool itself are made of small (emerging) stones. The furnitures keep the natural of the materials and are designed with simple and basic patterns and principles, as if sophistication was joining a new idea of the essential.



PROJECT DATA

Project: Villa Ronde
Location: Japan
Architect: Ciel Rouge
Project Area: 2,000 square metres
Completed: 2010
Photographs: © Iishii Toshihisa

Marcel Sembat High School scores praises for green roof structure

On an abandoned suburb, the project made waking up every day to attend school under an outstanding green-roofed structure as a child's right.

Designed by archi5, the Marcel Sembat High School in Sotteville-lès-Rouen, France offers technical education about motors and vehicle mechanics. It demands vast spaces with high ceilings and large surfaces. It is located in a declining industrial suburb of the port of Rouen, France.

The site and the size of the programme turned the project to a combination of landscape design, architecture and town planning.

While cleared of the six early disordered 30's buildings, the site appears like a clearing between a large park and the city. The needed substantial volume for the workshops is covered by a striped green-roof. The building starts at the boundary of the park and fits naturally in the site by the wavy design of its vegetated roof. It reconnects the existing school with its surroundings, so that its soft lines and slopes blend naturally into the physical features of the park on one hectare.

Ideally, the project should also respond to the social setting. The architect aimed to use the largest, lightest and most pleasant part of the site to house the workshops. The classrooms are displayed along the long side of the workshop, with direct visual relations, to bring back together intellectual and manual activities. The design of the roof lets natural light reaching deep inside, protects from the direct sun. The curves of the structure remind the sensual shapes of old car wings to offer a new image of manufacturing environments. Steel structure allows long span use to free the ground level of structure.

On the city side, the architect redesigned the public space to connect the high school with its workshops and with the future public library. The architect said that this clear and understandable design will light up students' and teachers' everyday life. The architect also wanted to create a public space around the crossing street by making a great plaza in front of the new workshops building.

PROJECT DATA

Project: Marcel Sembat High School
Location: Sotteville-lès-Rouen, France
Client: Haute Normandie district
Architects: archi5
Collaborators: B. Huidobro / IOSIS Ouest / SPEC / ABC Décibel
Steel structure contractor: Constructions Métalliques Charondière
Main contractor: Millery Colas
Surface: 12,764 square metres
Cost: 35,320,318 Euros without taxes
Time-table: Competition winner October 2005 – Completion 2011
Steel structure size: 83 x 141 metres
Steel structure weight: 1000 tons
Photographer: Sergio Grazia

Green-Roofed Farming Kindergarten

PROJECT DATA

Project: Farming Kindergarten
Location: Dongnai, Vietnam
Architect Firm: Vo Trong Nghia Architects
Principal architects: Vo Trong Nghia, Takashi Niwa, Masaaki Iwamoto
Architects: Tran Thi Hang, Kuniko Onishi
Program: Kindergarten
Site area: 10,650 square metres
Gross Floor Area: 3,800 square metres
1F; 2615.9 square metres
2F; 1113.6 square metres
Contractor: Wind and Water House JSC
Client: Pou Chen Vietnam
Green building consultant: Melissa Merryweather
CFD analysis: Environment Simulation Inc.
Status: Built in October 2013
Photographs: Hiroyuki Oki and Gremsy (http://flyingcam.com.vn)

The Farming Kindergarten for 500 preschool children, situated next to a big shoe-factory, is a prototype of the sustainable education space in tropical climate. Located in Dongnai, Vietnam, the building is designed by Vo Trong Nghia Architects for the children of factory workers within low-budget.

Vietnam has many productive lands for agriculture, for example Mekong Delta. However, recently, there are many problems, which affects nature and agriculture, such as flood, salt damage and drought. There are serious urban issues, too. Numerous motorbikes are running in streets, causing air pollution. And cities in Vietnam are losing their greenery. Consequently, there is no safe playground for children, and children are getting inactive. The architect's mission is to create green kindergarten for Vietnamese children and protect them against these problems.

The concept of building is "Farming Kindergarten" with continuous green roof, providing food and agriculture experience to Vietnamese children, as well as safe outdoor playground. The green roof is triple-ring-shape drawn with a single stroke, creating three courtyards inside. While these internal courtyards provide safety and comfortable playgrounds for children,






the roof makes landing to the courtyards at both sides, allowing children to enter a very special eco-friendly experience when they walk up and go through it. This green roof is designed as vegetable garden, a place to teach children the importance of agriculture and relationship with nature.

Architectural and mechanical energy-saving methods are comprehensively applied including but not limited to: green roof, PC-concrete louver for shading, using recycle materials, water recycling, solar water heating and so on. These devices are designed visibly in order for children to realise the important role of sustainable education.

House For Trees

Under rapid urbanisation, cities in Vietnam have diverged far away from their origins as rampant tropical forests. In Ho Chi Minh City, as an example, only 0.25 percent area of the entire city is covered by greenery.

Over-abundance of motorbikes causes daily traffic congestion as well as serious air pollution. As a result, new generations in urban areas are losing their connections with nature.

"House for Trees", a prototypical house within a tight budget of 155,000 USD, is an effort to change this situation. The aim of project is to return green space into the city, accommodating high-density dwelling with big tropical trees.

Five concrete boxes, each houses a different program, are designed as "pots" to plant trees on their tops. With thick soil layer, these "pots" also function as storm-water basins for detention and retention, therefore contribute to reduce the risk of flooding in the city when the idea is multiplied to a large number of houses in the future.

PROJECT DATA

Project: House for Trees
Location: Tanbinh, Ho Chi Minh City, Vietnam
Client: Individual
Architect Firm: Vo Trong Nghia Architects
Principal architects: Vo Trong Nghia, Masaaki Iwamoto, Kosuke Nishijima (3 principals)
Architects: Nguyen Tat Dat
Contractor: Wind and Water House JSC
Status: Built in April 2014
Program: Private house
Gross floor area: 226 square metres (226.50)
Footprint: 111.66 square metres
Site area: 474.32 square metres
Photographs: Hiroyuki Oki

Fytogreen plants a roof garden on Victorian Desalination Facility

Fytogreen, a leading specialist in environmental semi-extensive roof gardens, lightweight intensive roof gardens, vertical gardens and green facades in Australia and New Zealand, designed and installed a roof garden for the Victorian Desalination Plant in Wonthaggi, Victoria.

Being a coastal ecologically sensitive area, the brief from the client, Aquasure, was to minimise the visual impact of Australia's largest municipal water treatment plant. Therefore, Fytogreen used around 110,000 tube stocks of indigenous ground covers, sedges, lilies, succulents and nonwood shrubs for the roof garden. According to Fytogreen, the size of this roof garden makes it the largest green roof in the southern hemisphere. This project commenced in 2011 and finished early 2012. **For more information, visit www.fytogreen.com.au.**

PROJECT DATA

Project: Victorian Desalination Plant
Location: Wonthaggi, Victoria, Australia
Architect: ARM / Peckvonhartel
Landscape Architect: Aspect Studio
Designer (Green Roof): Fytogreen Australia
Completion: 2012
Text & Photos: Fytogreen Australia

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Interview with Wolfgang Ansel, Director, International Green Roof Association (IGRA)

VanDusen Visitor Center, Botanical Gardens Vancouver – A blooming roof idea. Photo Copyright: ZinCo

Q: How does a green roof help make a building more energy efficient? What are the short term and long term benefits of green roofs?

A: Green Roofs influence the energy efficiency of a building in two ways. In the colder parts of the year they form an additional layer of warmth insulation. In summer, they reduce the heating up of the building and therefore the energy costs accrued through air conditioning. These benefits are realised immediately.

Additional short-term advantages have to do with the ecological function of rain water retention and the cooling of urban climates. Also, Green Roofs configured as rooftop gardens may be enjoyed by their owners from the beginning on as new additional living space. Longer-term advantages including the extended life expectancy of the underlying roof and waterproofing layers as well as developing rooftop biodiversity both play an important role over time.

The vertical forest combines high-density residential development with tree planting in city centers. Photo Copyright: IGRA

Q: In many parts of the world, green roof is the next big thing in green design. But Europe and the USA seem to be ahead of Asia in terms of the numbers of installations. What could be the possible reasons behind the different levels of adoption?

A: That's a good question. On the one hand, the longer tradition of developing Green Roofs in these regions surely plays a role. In Germany and Switzerland for example, Green Roofs have already been successfully installed for 30 years. The Green Roof market has therefore had more time to successfully develop itself. Another reason could be that in Europe and the USA many Green Roofs have been installed for environmental reasons. These so-called extensive or low maintenance Green Roofs are, in comparison with usable rooftop gardens, much less expensive to install resulting in a greater installation ratio for them. There are however examples of outstanding Green Roofs in Asia from which we may learn. In Singapore for example, the architect Wong Mun Summ utilises an approach of installing green facades and private terrace gardens on various levels of his buildings, which results in a greater total green space than the original footprint of the building itself.

Q: What are some of the challenges hindering the adoption of green roofs in Asia? And what is being done to overcome those challenges?

A: One part of the puzzle is that not all of the advantages of Green Roofs are yet known by investors, developers and architects. Also, many Asian cities shy away from the notion of fixing Green Roofs as a standard within new building code. Other possibilities for advancing Green Roofs are tax incentives. Cities like Singapore are making use of various instruments in the promotion of Green Roofs. However, one must not underestimate the fact that advocacy requires a certain amount of time before it can become established in the minds of the people.

Q: Can you share with some examples of green roof projects that you have found to be interesting and innovative?

A: Among the most exciting projects of the last years is the example of the VanDusen Botanical Garden Visitor Center in Vancouver, Canada. Architect Peter Busby and landscape architect Cornelia Hahn Oberlander have delivered a calling card of ecological construction in the orchid-formed rooftop of that building.

Green Roof shells of Zorlu Center. Photo Copyright: Onduline Avrasya A.S.

Equally visionary is the Bosco Verticale (Vertical Forest) project in Milan, Italy by Stefano Boeri and Laura Gatti. The idea of creating a 1 hectare forest on the façades of a pair of sky scrapers in the middle of Milan, thereby improving the residential climate and creating a natural biotope in the inner city, is a completely new concept.

The fact that real-estate values can be improved with the greening of buildings is demonstrated by the Zorlu Center in Istanbul, Turkey. The architecture team of Tabanlioglu and Emre Arolat succeeded in integrating more than 70,000 m^2 of tangible landscape into the building, from which not only the natural environment but also visitors and residents of this mixed-use shopping, office and hotel complex may benefit.

Q: What trends are you seeing in the green roof industry? What will the future of green roofs look like?

A: Relevant urban planning challenges of the coming years will deal with strategies for climate change adaptation. Through the targeted optimization of issues such as rain water retention and urban cooling, Green Roofs may become even more valuable in this field. Also, the combination of Green Roofs with Photovoltaic arrays offers potential for the future and serves as a prime example of ecological design, considering the various aspects.

Q: What is IGRA doing to push green roofs in both Europe and Asia?

A: The key to rapid and successful development of the Green Roof market lies in the exchange of information. We have, for example, worked with the municipality of Portland, Oregon (USA) and the International Federation of Landscape Architects (IFLA) to bring a city network to life, through which case studies of municipal Green Roof policy can be exchanged. We are also active online (www.igra-world.com) and with social media (Facebook, LinkedIn). However, even in the digital age, direct human contact remains an important platform for the discussion and development of further Green Roof applications. This year we are organising the 4th International Green Roof Congress (20-21. April, Istanbul Turkey www.greenroofworld.com) – an exhibition of green building in the age of urbanisation and climate change adaptation. The congress location of Istanbul, situated on the continental bridge between Europe and Asia, serves a role no other city can for the suitable exchange of information between East and West.

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Designed by Levitt Bernstein Associates, the Queensbridge Quarter in London, features a stunning ventilated rainscreen cladding system, StoVentec Glass.

Queensbridge Quarter, London

The ventilated rainscreen cladding system, StoVentec Glass, creates a stunning effect on the penthouse level of the award-winning Queensbridge Quarter apartment building in the London borough of Hackney. Developed by specialist social housing contractor United House, Queensbridge Quarter incorporates a total of 151 affordable residential homes and is part of the Holly Street Estate regeneration scheme.

The scheme uses a limited palette of materials, including the StoVentec Glass system that had previous only been used in mainland Europe.

Keen to reduce how high the building looked at street level, due to local authority concerns and to ensure it would sit well with surrounding buildings, Levitt Bernstein decided to set the top floor of the building back away from the street to minimise its visual impression. The blue/green colours of the rainscreen cladding system correspond with the changing colours of the sky, creating a visual illusion at the top of building.

Simon Lea, project architect at Levitt Bernstein said, "Sto were able to provide a suitable rainscreen cladding system that worked well with the render system and importantly match the bespoke colours required by United House."

The lightweight StoVentec Glass system with rear fixing and visible joint pattern incorporates suitable insulation materials to meet U-value requirements and the pre-fabricated panels can be quickly and easily installed. The glass panel is manufactured to meet bespoke colour and size requirements, with RAL colour and screen printing options available.

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StoVentec Glass is available in Singapore through Sto South East Asia. **For more information, tel (+65) 6453 3080, fax (+65) 6453 3543, email info.sg@sto.com or visit www.sto-sea.com.**

Overview of StoVentec Glass

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- Limited combustibility

Appearance:

- Surface made of tempered safety glass
- Concealed fixing
- Resistant, smooth surface – low maintenance costs regarding cleaning
- High-quality appearance
- Brilliant surfaces with depth effect
- Broad colour variety – RAL colours, screen printing, logos, etc
- Panel façade – joint as design element
- No limitation to the lightness value

Application:

- Fitting of factory-produced panels in the sub-construction at the construction site
- Installation possible in all weathers
- Fast installation
- Complete detail solutions

Approvals:

The relevant European and/or national approvals apply.

PROJECT DATA

Project Name: Queensbridge Quarter, Hackney, London
Architect: Levitt Bernstein Associates
Client: United House Developments
Applicator: OCL Ltd.
Sto Products: StoVentec Glass ventilated rainscreen cladding system

Sika offers a concrete solution to Capitol Development

The Capitol building in Singapore was completed in 1933 by the architectural firm Keys & Dowdeswell, and built on the existing structure of the Capitol Theatre, built earlier in 1929. The style of the building is eclectic neo-Classical, characterised by somewhat ponderous detailing.

It was one of the very few air-conditioned theatres when it was built by the Namazies, a prominent Persian family to host live shows. By the mid-1930s, there were 10 cinemas, of which the Capitol was the largest and the newest. It opened in 1930 and was followed by the Alhambra, Marlborough, Pavilion, Roxy, Wembley, Tivoli, Empire, Jubilee and Gaiety.

In November 2011, Shimizu Corporation was awarded the redevelopment project to develop it into a large-scale mixed-use complex called "Capitol Development".

Under this redevelopment project, Capitol Theatre will be refurbished and transformed into a cinema cum theatre, and both Capitol Building and Stamford House will be restored into luxury hotel cum retails. The scale of refurbishment is about 21,000 square metres. When refurbished, it will consist of a 6-Star Hotel, Luxury Residential Apartments, Heritage Retail Arcade and a 4-storey Shopping Mall.

Design requirements

As part of conservation exercise, the structural elements have to be strengthened and prolonged to another 40 years of life span. There are signs of spalling concrete, corroded rebar and weakening of the concrete elements.

Sika solutions

To stablise the corrosion activity within the concrete matrix, Sika proposed Sika Ferrogard 903, a surface applied corrosion inhibitor to apply onto the concrete substrate and allow it to impregnate.

This material offers a "Re-alkalinasation" effect. It is to restore the PH value within the concrete environment, by forming a passive layer around the reinforcement steel.

Additionally, to strengthen the concrete elements, Sika proposed a carbon fiber wrap, Sikawrap 601C of an average four layers of wrapping to column and beam. This is to provide additional reinforcement due to increase in external loading.

The Sika solutions used in the Capitol Development project ensure long-term protection to concrete structure. **For more information, contact Larry Lim at tel (+65) 67772811, email lim.hanyong@sg.sika.com or visit www.sika.com.sg.**

MEVA Guided Climbing System MGC appears on Central London Skyline

Construction is underway on 866 apartments under the shadow of the historic Battersea Power Station in central London. This is part of Phase 1 of an extensive development project on 40 acres around the station, which itself is currently undergoing extensive refurbishment. Byrne Bros. Formwork chose the MEVA guided climbing system MGC to construct the two circular stair risers and four lift shafts.

Unusually shaped stair cores with class B concrete finish

The unusual shape of the stair cores combined with the requirement of a class B finish led MEVA to choose to provide a purpose built shutter using our circular formwork Rundfix system combined with the award winning, alkus face sheet. The internal radius of the shutter was just 2.3 metres, so using a system formwork was not an option. The all plastic face sheet alkus has for many years been the choice of material for projects requiring a superior concrete finish at an affordable price. It is rolled in the same way as steel but is lighter and more flexible, allowing MEVA to ensure the formwork matches exactly the customer requirements.

Keeping crane time to a minimum: only 90 minutes to cycle from floor to floor

Byrne Bros. Formwork elected to use the MEVA guided climbing system MGC to provide a safe working environment for the workforce whilst ensuring crane time required to cycle the system be kept to a minimum – just 90 minutes to cycle from floor to floor. The platforms and formwork connection details are robust and fully adjustable, allowing the workforce to ensure the core climbs within the tolerances allowed. MGC, combined with MEVA's flagship product Mammut 350 has enabled them to use just a single panel height from ground to roof, accommodating varying heights of construction. The largest panel supplied is 3.5 metres x 2.5 metres with a permissible pour pressure of 100kN/m^2.

Construction is underway on 866 apartments as part of phase one of the Battersea Power Station development project in central London. Custom-made Rundfix internal circular shutters with the all-plastic facing sheet alkus are being combined with MEVA's new steel formwork system 'Radius' to achieve a class B concrete finish. MEVA's large-format wall system Mammut 350 seen here on the guided climbing system MGC, has a load capacity of 100 kN/m2. Its 3.50 panel enables the contractor to finish one level in a single pour from ground to roof using just one panel height.

Internal circular shutter combined with MEVA's new circular formwork system Radius

Whilst designing the structure, it was quickly agreed that combining both lift shaft and stair riser within one unit would further save time and resources, along with a faster cycle time. MEVA opted to combine the bespoke made Rundfix (internal circular shutter) with our new Radius circular formwork system, the new steel radius system launched early 2014. With panel heights matching those of the Mammut 350, it was a simple task aligning ties and joints further facilitating the climbing process.

Planning and design with MEVA expertise helps speed up workflow

MEVA worked extensively with Byrne Bros. Formwork to ensure that the pre-planning, design and subsequent delivery matched exactly the site requirements. Following advice from MEVA, Byrne Bros. Formwork adopted the pre-assembly method ensuring all platforms and main components were assembled outside of the critical path leading to the system being installed and ready to climb within two days of the first pour. The programme savings are clear to all and by working outside of the main construction site, Byrne Bros. were able to work at ground level throughout the process. Installation of the finished working platforms was then a simple process requiring very little crane time.

For more information, visit www.meva-international.com.

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Lysaght: Your Trusted Partner in Building Systems

Time-honoured in 1965, BlueScope Lysaght Singapore comes under the umbrella of BlueScope Steel Limited Australia, one of the world's most dynamic and largest steel solution provider and roll former, with more than 21,000 employees in 17 countries with over 100 manufacturing facilities worldwide. The Company whose roots date back to the founding of the Broken Hill Proprietary Company (BHP) Limited in 1885, has a solid track record in the global steel industry for more than 135 years in Asia making it a premier supplier of steel building components and systems.

Lysaght is no stranger to Asia building and construction industry with its distinctive mark of the LYSAGHT® brand which is synonymous with the manufacture, supply and installation of the truly tried and tested suite of premium steel building products and solutions.

Formally known as BHP Steel Building Products, BHP Lysaght and John Lysaght in the earlier years, and with its recent company name change to NS BlueScope Lysaght; the Company has remained till today succeeding in its philosophy and vision of providing only the best building solution to its customers. From roof and wall, steel cladding on institutions, houses and factory buildings, to structural steel decking in floors of skyscrapers, LYSAGHT® solutions is integral to many of Singapore's landmark developments.

As the first marketing office of BlueScope Steel's downstream operations in Asia, Lysgaht Singapore indeed is part and parcel of Singapore's rapid growth towards the success and the continued development of the country in the past 50 years for the country which is recognized as one of the Four Asian Tigers.

Outram MRT Station

Lakeside Primary School

Esplanade Theatre by the Bay

Sengkang Sports & Recreation Centre

1) Major Milestones:

1965	Incorporated as John Lysaght (Malaysia) Limited.
1966	Corporate name changed to John Lysaght (S.E.Asia) Limited.
1969	Limited by shares and renamed John Lysaght (S.E.Asia) Pte Ltd.
1978	Corporate name changed to John Lysaght (S.E.Asia) Pte Ltd.
1990	Corporate name changed to BHP Lysaght (S.E.Asia) Pte Ltd.
1994	Corporate name changed to BHP Steel Building Products (Singapore) Pte Ltd.
	Incorporated BHP Lysaght as a business firm owned by BHP Steel Lysaght (Singapore) Pte Ltd.
2002	Corporate name changed to BHP Steel Lysaght (Singapore) Pte Ltd.
2003	BHP Steel Limited had a new name - BlueScope Steel Limited. As a result, BHP Steel Lysaght also changed its name to BlueScope Lysaght.
2005	BlueScope Lysaght (Singapore) Pte Ltd celebrated its 40th Anniversary in Singapore, and BlueScope Steel commemorated 40 years of growth in Asia.
2012	Joint venture with Nippon Steel Sumitomo Corporation, thus renamed to NS BlueScope Lysaght Singapore Pte Ltd

2) Lysaght's Achievement:

1993	ISO 9002 Quality Management by Lloyd's Register for Lysaght's commitment to quality and safety standards.
1997	Singapore Quality Class (SQC) status awarded for Lysaght's performance towards business excellence.
	The first recipient of a 'Friend of Architecture' by Singapore Institute of Architects.
1998	1998 Singapore National Productivity Award for outstanding productivity achievements.
2001	2001 Innovative Exhibit Award by the Building Construction Industry at Baucon Asia.
2002	ISO 14001:2000 Environmental Management System by Lloyd's Register.
2003	BCA Best Buildable Design Award (Residential Landed Building) for steel framed house.
	ISO 9001:2000 Quality Management System by Lloyd's Register.
2006	Outstanding Achievement Award for LYSAGHT® Step Ladder, awarded by Ministry of Manpower.
	ISO 14001:2004 Environmental Management System by Lloyd's Register.
2007	Outstanding Achievement Award for LYSAGHT® Safe Roof System, awarded by Ministry of Manpower.
	OHSAS 18001:2007 Safety Management System by Lloyd's Register.
2009	2009 Outstanding Achievement Award for LYSAGHT® BizSAFE Star awarded by The Workplace Safety and Health Council.

Lysaght's Journey & Milestone

Since its establishment in 1965, BlueScope Lysaght has reached numerous milestones. "We are very pleased to share with our customers, suppliers as well as our employees, who have stood behind the growing success of the company," said Tarun Sinha, President of NS BlueScope Lysaght Singapore Pte Ltd.

Mr. Sinha further added, "We recognise the unique values of our local communities and seek to understand and work constructively with them through active partnership, mutual respect and long-term commitment which has resulted towards our continuous success and we like to say a Big Thank You and look forward to many more years of growth that will continue to motivate us in the coming 2015."

Product Portfolio: Market-Leading Innovations

BlueScope Lysaght Singapore is the premier supplier of steel building components and systems, specialise in two product categories, meeting the most stringent and architecturally demanding structures without compromising on strength, flexibility or aesthetics:

- Roofing and Walling
- Structural Decking Systems

In addition to the manufacture and supply of the aforementioned, BlueScope Lysaght Singapore is the only rollformer in the country which provides the following value added services to provide customers with customised solutions:

- Engineering Design Services
- Construction Services (for the supply and installation of Lysaght products and systems)
- Product Application and Specification Consultation

With its comprehensive product range and technical consultation capability, Lysaght prides itself as the provider of total building solution and the trusted partner for building systems.

Lysaght's Product Portfolio

Roofing and Walling:

- LYSAGHT® KLIP-LOK® OPTIMA™
- LYSAGHT® KLIP-LOK® 406
- LYSAGHT® SPANDEK® OPTIMA™
- LYSAGHT® SPANDEK®
- LYSAGHT® TRIMDEK® OPTIMA™
- LYSAGHT® TRIMDEK®
- LYSAGHT® LOCKED SEAM®
- LYSAGHT® SELECT SEAM®
- LYSAGHT® SELECT SEAM® II
- LYSAGHT® SELECT SEAM® III
- LYSAGHT® PRESTIGE® Panel II
- Decra® Metal Roof Tiles

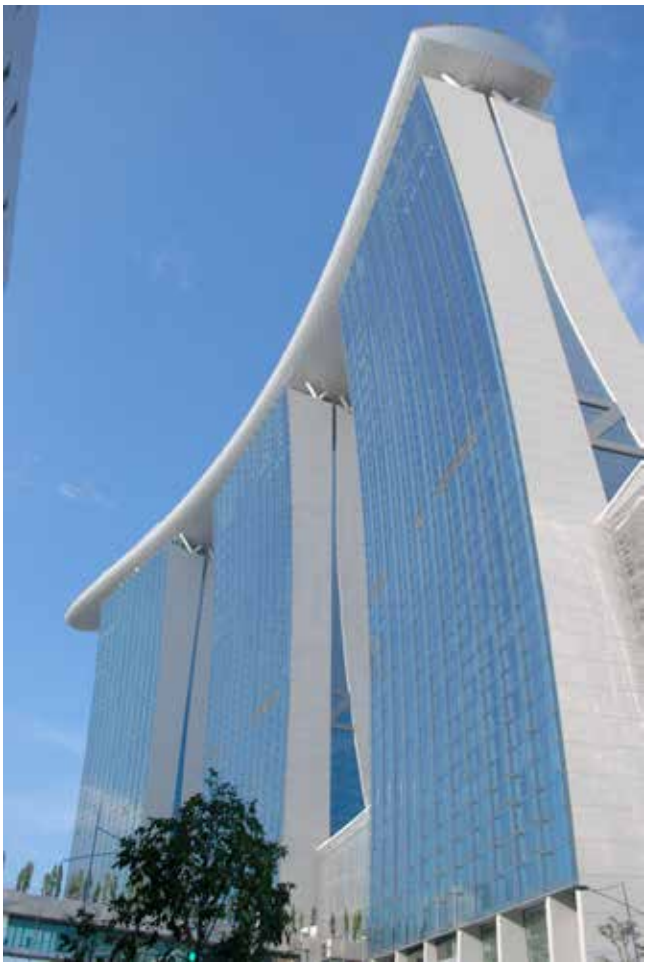
Light-weight, durable, requires zero or low-maintenance, environmental friendly, provide substantial noise and thermal reduction, Lysaght roofing and walling are aesthetically pleasing in appearance, are ideal where a modern and contemporary appearance is required.

The Lysaght mobile roll forming solution is a quickly relocatable mobile roll former crewed by specialists with extensive, practical roofing experience. This is a solution which not only overcomes the logistical challenges of long length roofing, but also provides architects and engineers with new design options to create sweeping, unbroken rooflines which are attractive as well as practical.

Structural Decking System:

- LYSAGHT® SMARTDEK®
- LYSAGHT® BONDEK® II
- LYSAGHT® POWERDEK®

National Library of Singapore



Marina Bay Sands (SkyPark, Museum, Podium)

BlueScope Lysaght is recognised as the industry pioneer in the manufacture and supply of high quality steel structural system. LYSAGHT® BONDEK® II and POWERDEK® Structural Decking, are often used as the lingua franca within the construction industry to denote the steel decking system, offering a faster and more cost-effective alternative to the conventional reinforced concrete slab system.

Suntec Singapore International Convention and Exhibition Centre

Behind Lysaght's Superior Product Quality and Unmatched Reputation

Lysaght knows the importance of good quality steel material. Its roofing and walling products are manufactured using BlueScope's signature and premium steel products such as Clean COLORBOND® steel and ZINCALUME® steel.

All Lysaght Products are tested and developed at BlueScope Technology Centre in Chesterhill, Australia. This independent testing facility is accredited internationally by the National Association of Testing Authorities (NATA) and the Commonwealth Scientific and Industrial Research Organization (CSIRO) in Australia.

Comprehensive Warranties:

The stringent standard and testing ensure that Lysaght Brand is guaranteed with the highest of quality. NS BlueScope Lysaght is the only roll former in Singapore which offers a full range of comprehensive warranties for our products to provide customer peace of mind:

Material Warranty*	Covers corrosion, paint fading and dirt staining
Workmanship Warranty*	Covers all aspects of installation work carried out by BlueScope Lysaght under the Supply & Install Contracts.

** Warranty Terms & Condition apply*

Some Iconic Projects by Lysaght:

Lysaght continues to contribute to the development of society and enhancing the safety of structures by delivering high-performance steel products. Lysaght is known to have a wealth of experience in various construction projects including;

Project Title	Product	Year of completion	Sector
Keppel DistriPark	Klip-lok® 406	1993	Commercial
Sengkang Sports & Recreation Centre	Klip-lok® 406, Prestige® Panel II, Spandek®, Trimdek®	2008	Sports
Esplanade Theatre by the Bay	Locked Seam®	2002	Arts
Outram MRT Station	Locked Seam®	2003	Infrastructure
Lakeside Primary School	Select Seam®	2003	Institution
Suntec Singapore International Convention and Exhibition Centre	BONDEK® II	1991	Commercial + Retail
Marina Bay Sands (SkyPark, Musuem, Podium)	BONDEK® II & POWERDEK®	2010	Commercial
National Library of Singapore	BONDEK® II	2005	Institution

50 years of establishment marks an important milestone to Lysaght in Asia. While justifiably proud of its history, BlueScope Lysaght keeps its focus on the future. With a commitment to research and development, initiatives in specialised fields and technology, Lysaght Singapore continues to stay innovative and versatile, adapting well to the demands of the ever evolving style and design needs of Singapore construction sector, offer more options which allow customers to build better, build smarter.

For more information, contact NS BlueScope Lysaght Singapore Pte Ltd at tel (+65) 6264 1577 or visit www.lysaght.com.sg.

More than just a consumer electronics brand, Panasonic demonstrates its B2B capabilities for Asia Pacific

In many markets worldwide, Panasonic has established itself as one of the major players in the consumer electronics sector. Like most Japanese companies, the brand is synonymous with quality, reliability and long-lastingness. It may come as a surprise to some, but Panasonic's business-to-consumer (B2C) portfolio makes up only 24% of its overall business. Business-to-business (B2B) solutions in sectors such as housing, energy management, lighting, system communications and agriculture, still form a large portion of the company's business portfolio.

To give the media a better understanding of Panasonic's Business-to-business (B2B) solutions, the company organised a one-week business trip to Japan for several journalists from Asia Pacific. The highlight of the trip was the grand opening of the Fujisawa Sustainable Smart Town in the presence of the Fujisawa governor, Panasonic's customers and business partners, and industry guests.

Developing Smart & Sustainable Cities

Global climate change, urbanisation and population expansion, have prompted us to look into efficient utilisation of existing resources. Fujisawa Sustainable Smart Town embodies how we can integrate technologies and solutions to residents' lifestyles without compromising comfort and convenience.

Fujisawa Sustainable Smart Town

Located on the outskirts of Tokyo, Fujisawa Sustainable Smart Town (Fujisawa SST) is based on the concept of a smart community lifestyle, taking into account aspects such as energy, security, mobility and healthcare. The town features homes with solar panels, lithium-ion energy storage batteries, LED lighting, mobility-sharing services and a community centre with a cafe and kitchen facility to hold workshops and events. The idea is to create a centralised meeting place for the town's residents and visitors.

Fujisawa SST was officially opened on 27 November 2014 by the Fujisawa SST Council, a consortium led by Panasonic Corporation to spearhead the town's development.

Covering an area of over 19 hectares, the town will boast 1,000 households comprising of 600 semi-detached houses and 400 apartments. It will also have various facilities designed to promote interaction among residents and visitors. The total cost of the project is approximately 60 billion yen.

A view of the Fujisawa Sustainable Smart Town (Fujisawa SST).

The construction of the Fujisawa SST was carried out in two phases. Phase 1 has already produced 120 semi-detached houses. An additional 100 semi-detached houses will be built under Phase 2, which will be completed by March 2015. In total, 600 semi-detached houses are expected to be completed and sold by 2018. All the facilities in the town will also be completed by 2018. As for the 400 apartments, they are still in the design and planning stage, said the company. Fujisawa SST is designed by leading Japanese architecture firm Nihon Sekkei.

Fujisawa SST is being nurtured to grow in full-scale into an eco and smart town that puts a high priority on the residents' lifestyles. For example, every detached house in Fujisawa SST will be installed with a solar power generation system and storage batteries. Devices for managing power consumption of home appliances will be integrated into a complete SMARTHEMS™ (Home Energy Management System). This will give residents optimal control of household energy consumption while utilising electricity generated from Fujisawa's sunlight.

Fujisawa SST will also have various facilities in the Fujisawa SST SQUARE designed to promote interaction among the residents and guests visiting the town. The SQUARE Center has a cafe and kitchen corner where people can relax or host environmental education activities and other events, as well as a presentation corner that introduces main appeals of the town. The SQUARE Lab is a food and craft studio offering interactive workshops for the residents. The SQUARE Mobility provides environmentally-friendly means of transportation. In mid-December, a cultural complex called the Shonan T-SITE was opened on the south side of the Fujisawa SST SQUARE. The aim is to make the combined site a place that will foster enriched lifestyles by maximising its

Aerial view of the Fujisawa SST. Covering an area of over 19 hectares, the town will have a 1,000 households comprising of 600 semi-detached houses and 400 apartments, when it is fully completed in 2018. Photo: © Panasonic

value to the people who gather there, including not only the town residents but also people living in the vicinity and visiting from elsewhere.

To turn the concept into a real town, Fujisawa SST has set a number of numerical targets to set the direction for creating the town. It aims to reduce CO2 emissions by 70 percent and achieve renewable energy usage of over 30 percent for the entire town. Fujisawa SST was selected as a leading project with excellent potential in CO2 reduction by the Ministry of Land, Infrastructure, Transport and Tourism. It was adopted as a 'Model Project for Promoting CO2 Reduction in Housing and Building' in September 2013.

A book store within the Fujisawa SST.

An outdoor playground for young children.

Central community area provides residents with a vibrant space for recreational activities.

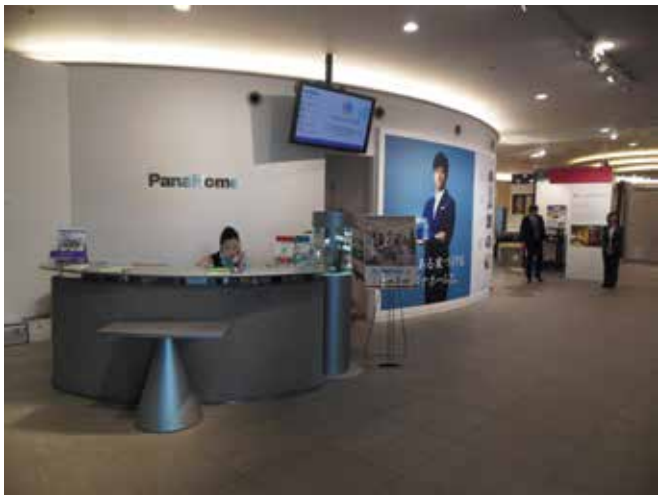
Smart Living Through Individual Housing Solutions

Panasonic promotes the concept of smart and sustainable housing through its home building subsidiary, PanaHome. PanaHome was established in 1963. The company focuses on three key proprietary technologies, PowerTech structure, which makes houses earthquake resistant, PureTech, which improves indoor air quality, and KiraTech tiles, which has the ability to self-clean via photocatalysis. To date, it has developed 450,000 residential properties in Japan.

In 2010, the company started its first overseas business operations in Taiwan (PanaHome Taiwan Co., Ltd. and PanaHome Taiwan Residence Co., Ltd.). This was followed by another PanaHome operation in Malaysia in 2012 (PanaHome Malaysia Sdn Bhd). According to Panasonic, PanaHome's market share and standard of quality in these countries is very high. It is well accepted and perceived by the market, added the company. Having enjoyed success in these markets, PanaHome is now making a strategic expansion towards 2018. It is looking at developing PanaHome in the whole of Southeast Asia region namely Myanmar, Thailand, Vietnam, Cambodia and Indonesia. The company has targeted sales of US$455 million for its PanaHomes in Malaysia, Taiwan and other ASEAN countries by 2018.

PanaHome CASART ECO CORDIS Showroom

The PanaHome CASART ECO CORDIS showroom, the latest housing model launched in April 2013, showcases the company's key house-building technologies and Panasonic's range of housing solutions. The house is built on an earthquake-resistant steel-



Entrance of the PanaHome showroom.

Model of the PanaHome CASART ECO CORDIS in the showroom.

Showcase of the PV roof used in the PanaHome CASART ECO CORDIS.

Sample of the self-cleaning and high-performance KiraTech tiles.

framed structure called PowerTech. The CASART ECO CORDIS boasts a variety of environmentally friendly features such as a full-PV roof which comprises of solar panels that can generate more than 10 kW of power for a house of approximately 115 square metres. The technology used is Panasonic's unique Heterojunction with Intrinsic Thin layer (HIT) solar power generation system.

The house also uses geothermal heat, which is cooler than the external air in the summer and warmer during the winter, in combination with improved heat insulation to reduce the energy load necessary for air conditioning.

In addition, a hybrid ventilation system, PureTech, installed in the house takes in the clean air under the floor and automatically controls the interior air flow. The house is equipped with Panasonic's proprietary energy efficient ECONAVI sensor technology. Furthermore, the entire energy-saving performance of the house is improved by carefully designing the house layout with large eaves that give less heat loss, as well as wide opening windows that maximise the natural light and breeze. The exterior of the house is installed with PanaHome KiraTech tiles, which come with self-cleaning effect to keep the external walls in lasting and clean condition. This translates to savings in maintenance costs in the long term. These tiles also have the capability to decompose the surrounding air pollutants, thus contributing to a cleaner environment.

Enhancing Energy Efficiency with LED Lighting

Energy efficient LED lighting is not limited to residential use. Panasonic ambient LED lighting system is also installed in a variety of spaces such as museums, aquariums, libraries, community centres and shopping malls.

Panasonic Shiodome Museum

Situated at Minato-ku, Tokyo, the Panasonic Shiodome Museum showcases the paintings and print works of the leading 20th century French painter Georges Rouault (1871-1958). The 100-square-metres Museum is entirely lit by next generation light fixtures from Panasonic such as LED lights and organic EL light prototypes. Not only do these lights bring out the natural colour of the paintings, they have also reduced the total energy consumption of the museum by about 32 percent. The energy consumption of lighting and air-con has been reduced by 67 percent and 18 percent respectively. In addition, LED lights assist in preserving the art works as they do not emit any ultraviolet or infrared rays.

Entrance of the Panasonic Shiodome Museum.

The interior of the museum is lit by next generation light fixtures from Panasonic such as LED lights and organic EL light prototypes. Photo: © Panasonic

Tokyo Skytree

The Tokyo Skytree is a digital terrestrial broadcasting tower in the Oshiage area of Tokyo's Sumida-ku. It is the tallest free-standing broadcast structure in the world, standing at a total height of 634 metres.

Panasonic has illuminated the Tokyo Skytree with 1,995 energy-efficient LED lighting fixtures and an LED lighting display system. Six types of high-quality and long-lasting LED lights are used in the structure to meet the specific needs of the structure. They boast high-quality light distribution, high-precision colour reproduction and heat distribution among its many features.

Tokyo Skytree illuminated with 1,995 LED lighting fixtures from Panasonic.
Photo: © Tokyo Skytree

A close up view of the Tokyo Skytree.

Convenience Store Solutions Keep Stores Running During Power Outage

Okegawa Experiment Store

Located at Saitama prefecture, the Okegawa Experiment Store is a retail outlet on the premises of Panasonic Technical Services. It is installed with Panasonic's photovoltaic power generation system, power storage system and energy efficient products, to provide it with reliable total energy solutions to keep it open even during a power outage caused by earthquake for example.

For this store, Panasonic has created an Energy Creation-Storage Linked System capable of supplying the minimum amount of electricity required for shop operations during power outages by linking a high-efficient photovoltaic power generation system and a lithium-ion storage battery. After the earthquake, a POS system and part of the LED lighting will remain operable, enabling the store to continue its operations for a few hours and serve the community during the crisis.

Entrance of the Okegawa Experiment Store.

The Okegawa Experiment Store features three main energy efficient solutions from Panasonic: refrigerator, LED lighting and air-conditioning. It also incorporates 100 different products from Panasonic, all aimed at lowering energy consumption in the store by at least 30 percent.

The LED lighting installed in the store uses 15 percent less energy than the conventional fluorescent lamps. Using an energy management system, the brightness level of the lights can be controlled using a tablet. After setting up the required

level of brightness that the store needs on a particular day on the tablet, it will automatically adjust the lighting requirements of the store. As a result, lighting becomes more energy-efficient. The ceiling of the store is also fitted with two lighting controls called the Panasonic Space Player that not just serve as lighting devices but also marketing tools. The space player can function as a spotlight to beam advertisements on the floor. It can also create different ambiances for the store by illuminating different colours on the floors. According to Panasonic, this is a new way of utilising spotlights in a convenience store. Currently, such lights are used in museums and restaurants. The light control systems can potentially boost sales for the store.

The Okegawa Experiment Store is also fitted with Panasonic's Inverter Split-Type Air-conditioner that is aimed at creating a comfortable room temperature and a refrigerator with a zero global warming potential to lower ozone depletion.

Interior view of the Okegawa Experiment Store.

The refrigerator from Panasonic is designed to reduce the impact of global warming.

The ceiling of the store is fitted with Panasonic LED lights and Panasonic Space Player.

The Space Player, which can function as a spotlight, can cast light on the floor of the store with advertising information for the shoppers.

The store is installed with Panasonic's Inverter Split-Type Air-conditioner.

The store is fitted with several CCTV cameras, where the video images can be seen in one big monitor screen.

The roof of the store is installed with Panasonic's photovoltaic power generation system.

A Better Life, A Better World

In line with its global business strategy, Panasonic will focus on strengthening its B2B portfolio while maintaining solid B2C growth in Asia Pacific. Similar projects are already underway in the region. Through its innovative technologies, high quality products and integrated solutions, the company aims to provide a better life and a better world in the communities it operates in.

Journalists from Asia Pacific and Panasonic staff on the media tour.

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Winning projects of Holcim Awards 2014 Asia Pacific

In the previous issue (Jan/Feb 2015), we announced the top three winners of the Holcim Awards 2014 Asia Pacific competition. Here, we showcase the three projects which have won using the "target issues" for sustainable construction that include the "triple bottom line" of environmental, social and economic performance, and also recognise the need for architectural excellence and a high degree of transferability. In addition, the projects show how building with sustainable construction in mind can enhance the region's human, natural and economic performance. A bird sanctuary in Thailand, a locally-adapted orphanage in Nepal, and a community library in Sri Lanka received the top prizes.

Protective Wing

Bird sanctuary wins Gold prize

Each year, thousands of birds are smuggled in and out of Thailand for their exotic colours and bird calls, to be sold on the world's growing black market. Rescued birds usually die in confinement because they are retained in cages for up to five years as evidence during prosecution of smugglers. The Bird Sanctuary serves as both an educational facility and a bird rehabilitation centre including a small hotel and bird viewing tower, in a site that simulates the natural habitat.

The integrated approach to bird conservation by Jariyawadee Lekawatana of Achitectkidd and Singh Intrachooto of Kasetsart University in Bangkok, together with Chak Cherdsatirkul of Kaomai Lanna Resort, Chiang Mai, simulates the natural habitat and includes a small hotel and bird viewing tower. Palm fiber discarded from agricultural production is re-valued as a construction material for the building envelope which provides additional habitat and food sources for all birds in the area.

Site 1: Boutique hotel, learning facilities and home for injured birds.

At the prize-giving ceremony in Jakarta, jury member Donald Bates (Australia) congratulated the Holcim Awards Gold winners for their innovative approach to addressing the devastating effects of bird trafficking on the survival of endangered wildlife. "The project's stance is aligned with the principles advocated by the International Union for Conservation of Nature and combines architectural qualities with conservation, education, research and eco-tourism in a complete and convincing way," he said.

"Establishing a link between political activism and building practice" – Holcim Awards Jury

The jury greatly values the project's political message concerning the devastating effects of bird trafficking on the survival of endangered wildlife. The author's ideological stance aligns with the principles advocated by the International Union for Conservation of Nature (IUCN), especially its "Red List of Threatened Species" – an eminent document guiding worldwide conservation policy and action. Considering architecture as an instrument of "action", the project literally establishes the link between political activism and building practice, combining architectural qualities with conservation, education, research and eco-tourism in a complete and convincing way.

Children's Ziggurat

Locally-adapted orphanage and library wins Silver prize

The Lali Gurans orphanage and library addresses the needs of an under-served rural population. In a context lacking basic infrastructure, the new facility utilises low-technology renewable energy and material resources, local craftsmanship, and vertical gardens for insulation and food, thus significantly reducing operating costs. The project also addresses the needs of the nearby communities by offering a library accessible to the public and a seismically stable refuge area during earthquakes.

The Lali Gurans orphanage and library in Kathmandu, Nepal by Hilary Sample and Michael Meredith of MOS Architects in New York, USA addresses the needs of an under-served rural population. In a context lacking basic infrastructure, the new facility utilizes low-technology renewable energy and material resources, thus significantly reducing operating costs. Using local construction techniques and materials, the design invests in indigenous workmanship. Vertical gardens and permaculture provide thermal insulation as well as food for cooking. Aiming to overcome the image of "the orphanage" as institution, the project addresses the needs of the nearby communities by offering a library accessible to the public and a seismically stable refuge area during earthquakes.

The concrete structure utilises vernacular building techniques and standardized formwork to create a seismically stable shape. This construction translates into an investment in local craft and workmanship. In contrast to local concrete buildings, which are normally finished in stucco, the orphanage's exposed concrete accentuates and expresses the vernacular. The brise-soleil provides an armature to negotiate interior and exterior through gardens, circulation and social spaces.

"Combining a social framework with a physical one in an apparently seamless way" – Holcim Awards Jury

The jury appreciated the simplicity and robustness of the structure, a reinforced fly-ash concrete frame establishing a three-dimensional matrix for manifold functions, including a range of public amenities. Specific spatial qualities are introduced within the structure, offering children the opportunity to discover, not unlike "Alice in Wonderland", spaces full of surprise and mystery – roof top terraces, hanging gardens, majestic halls and hidden chambers. The building ultimately manages to combine a social framework with a physical one in a seemingly seamless way.

Post-War Collective

Community library and social recuperation wins Bronze award

With the aim of reintegrating former soldiers into post-civil war society, young men from underprivileged backgrounds are trained in building techniques through their involvement in the construction of public buildings – such as this Community Library.

The slender building sits lightly in the landscape and wraps around an inner courtyard, taking full advantage of cross ventilation and daylighting. Rammed-earth walls and recycled materials reduce the building's ecological footprint.

A project in the rural town of Ambepussa by Milinda Pathiraja of Robust Architecture Workshop in Colombo, Sri Lanka was awarded Bronze. The project aims to re-integrate former soldiers into post-civil-war society by providing training in building techniques through the construction of a community library. The slender building sits lightly in the landscape and wraps around an inner courtyard, taking full advantage of cross ventilation and daylight use, rammed-earth walls and recycled materials reduce the building's ecological footprint.

3D view of the proposed library: The single-story building mass spans nonchalantly across the landscape, touching the earth as lightly as possible. The building informally wraps around an internal courtyard that is also an extension of the external landscape. The placement of the building on site retains all existing trees, while its linear footprint allows optimized natural ventilation and brings in sunlight to all internal rooms; rammed earth walls provide thermal mass.

"Capacity building that to focuses as much on the process as on the physical artefact" – Holcim Awards Jury

The jury commends the intention of the project to focus as much on the building process as on the building as physical artifact. The combination of two objectives, pertaining to the term "building" both as verb and noun, celebrates a specific understanding of architecture, one derived from the very structure of its making. Greatly appreciated is the project's vocational training aspect, which will contribute – beyond the immediate task at hand – to "capacity building" in a broader sense: the project would potentially heal collective wounds, build labor workforces, disseminate knowledge, foster sustainable development and strengthen social relations.

The library is under construction now.

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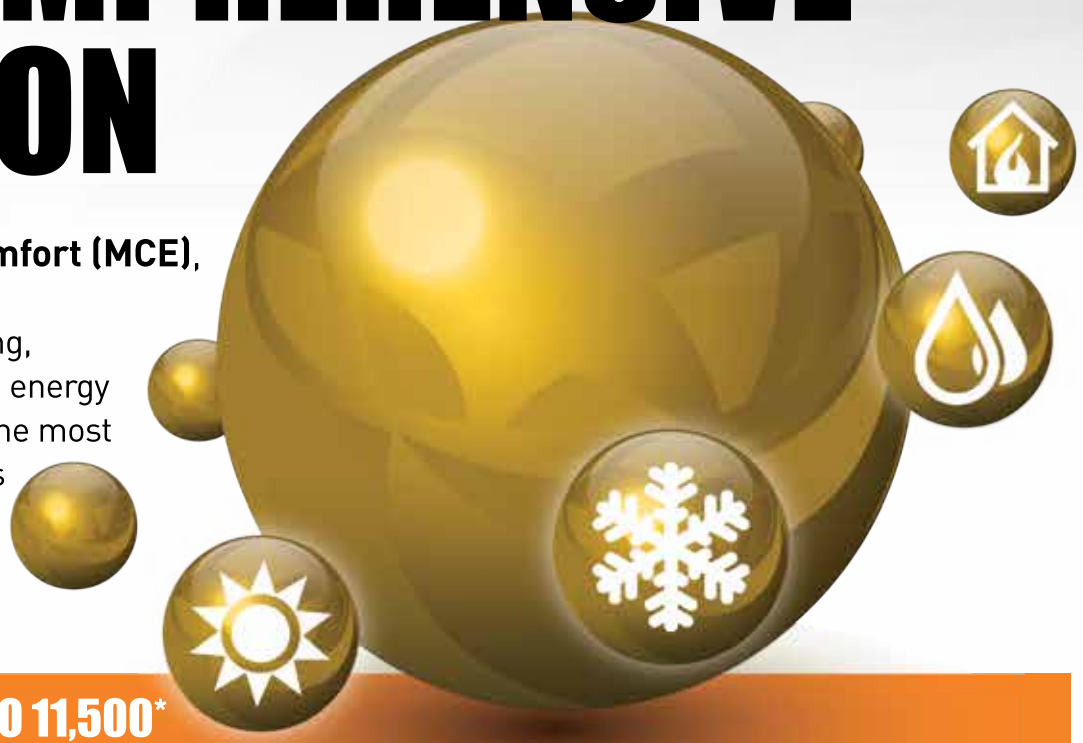

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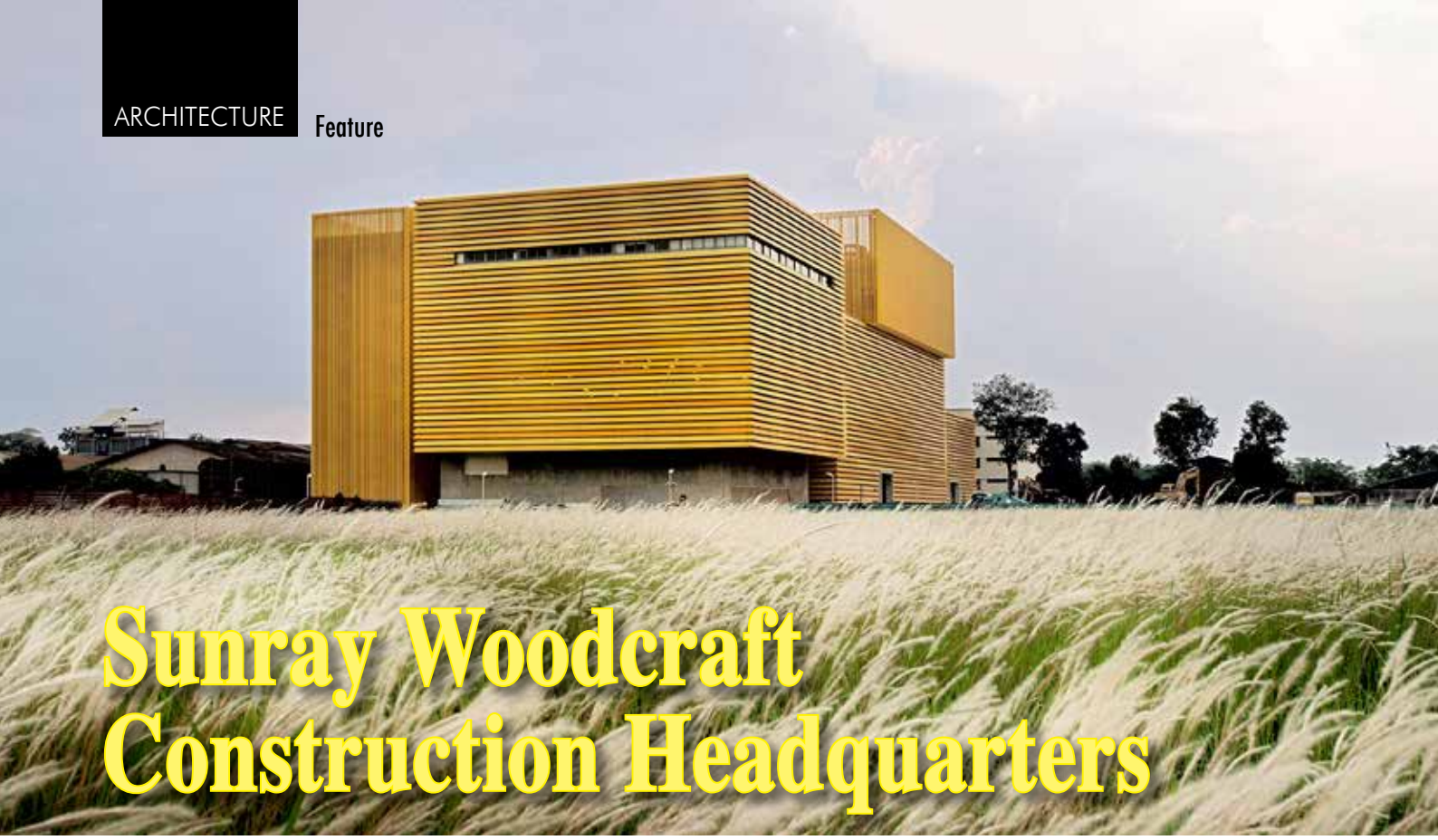

Sunray Woodcraft Construction Headquarters

Elevation from neighbouring site.

The new headquarters of Sunray Woodcraft at Sungei Kadut in Singapore, has a refreshing design by DP Architects Pte Ltd. The building won a Design Award at the 14th SIA Architectural Design Awards in 2014, under the Category: Industrial Buildings.

The use of juxtaposed volumes allows the design to challenge the norms of the typical factory.

The building housing the new headquarters of Sunray Woodcraft Construction is one of the first to be completed as part of the newly positioned International Furniture Hub in Sungei Kadut, Singapore. It presents an opportunity to look afresh at the light industrial factory type, stacking production processes in order to optimise working conditions.

Sunray Woodcraft is one of the largest interior builders in Singapore for interior fit out works. From its beginnings as a family-run business in 1987 to expanding to neighbouring Malaysia in 1991, the company has established a reputation for being a leader in their field.

The original brief called for an office building with an attached factory, complete with gallery showrooms and workers' dormitories, to replace the existing headquarters in Singapore and existing factory in Johor Bahru. This merging of two elements of the factory's production process and originally separate uses prompted a rethink of the spatial arrangement and workflow of the eight-storey building, which now comprises production space, workers' dormitories, warehouse, offices and showrooms.

The Sunray Headquarters provides a base for the group and is designed to reflect the company's design and craft expertise. The building's stacked timber box design is a series of interconnected volumes which correspond to their interior functions. Its design was driven by three challenges –namely, a wide range of user requirements, the client's ambitious requirement for increased space and the unique position of the site within the estate, highly visible from passing trains nearby.

Each box, reflecting the different stages of production, is identified by the specific needs that their individual spaces serve. Factory production and warehouse spaces are clad in yellow horizontal aluminium louvres, flooding spaces with the maximum amount of natural ventilation and light while remaining shaded from the sun and protected from rain. Deep recesses between boxes create intuitive points of entry and exit for each box while allowing natural light to penetrate deeper into the floor plate.

Office spaces are clad in closely spaced vertical aluminium louvres, shading the interior spaces and maintaining a view of the outside. The showroom box is clad in concrete – a contrast to the yellow boxes that make up the rest of the building. Its large picture window further highlights the furniture on display and creates a focal point on two sides of the building facing the train tracks.

The workers' dormitory at the rear of the site is clad in vertical louvres with checkerboard openings to allow for maximum natural ventilation while maintaining privacy. Smaller areas which require highly controlled ventilation systems, such as the spray booth and laser cutter work areas are located within boxes

Facade treatment for worker dorms is designed to allow for privacy as well as allow ample natural ventilation into the spaces.

clad in precast concrete with high level windows and mechanical ventilation. The use of yellow throughout the building pays homage to the company's corporate colour, with the three tones serving as a creative interpretation of the stacked timber boxes concept.

The specialised facilities of Sunray Headquarters allow the factory to handle anything from bespoke interior fit outs to interiors for international hotel chains. The seamless workflow of spaces, easily navigable volumes and efficiently planned areas are designed around the movement of materials, finished products, as well as three separate user groups, namely the showroom and office visitors, staff and dormitory workers.

The building experience for each group is carefully planned, with the user's requirements driving the design. For example, contiguous floor space between production zones and dormitories allow fast and easy access for workers. Dormitory floors are stacked towards the rear of the site, facing away from other workshop activities which may otherwise cause noise or dust and allowing for maximum privacy.

Visitors arrive in the drop-off lobby on the ground floor, located within the perimeter of the building. A lift lobby then brings visitors and office workers up directly into the showroom or office reception areas. Between the main office workspace and the offices of upper management, reception areas overlook roof terraces, filling these areas with natural light and providing long vistas over the estate. Here, a secondary lift core also allows staff direct access into the workshop and warehouse areas. Ensuring a seamless design and smooth production processes was crucial to maximise efficiency and quality control. The design, meticulously catering for a wide range of users, their needs, the movement of raw materials and finished products, helps to give the building a rich and varied focus.

The design for Sunray redefines the notion of tropical architecture and the characteristic wood and furniture factory – from the typical, open-sided, corrugated metal roof, warehouse type commonly seen in the region into a design highly efficient and aesthetically appealing. Responding to the subjective needs of the interior spaces, the building skin envelops each space accordingly, with large horizontal openings to bring in ventilation and light for production spaces, smaller vertical openings for office spaces and an enclosed box to retain the controlled light conditions required in the showroom. The building is a striking design statement embodying the efficiency and pride the client has in their craft, raising the bar for similar development types in the surrounding Sungei Kadut area.

DP Architects' team behind Sunray building.

Natural light floods the internal spaces of the factory.

PROJECT DATA

Project: Sunray Headquarters
Location: Sungei Kadut, Singapore
Client: Sunray Woodcraft Construction Pte Ltd
Architect: DP Architects Pte Ltd
Project Team Members:
Angelene Chan
Yong Hock Seng
Doan Quang Hiep
Claudia Nam
Widari Bahrin
Arjun Rosha
Alvin Arre
Syahirah Abbas
Area: 16,800 square metres
Year of completion: 2014
Photos: © DP Architects Pte Ltd

An internal feature that can be seen from the main road, the spiral staircase connects the showroom to the office and meeting spaces above.

EXTERIOR WALL | KNAUF USG SYSTEMS GMBH & CO. KG

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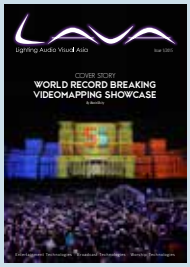

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LUXURY DOOR HANDLES | HAUTE DÉCO

Haute Déco has developed a unique and diverse collection of coordinated contemporary handles for doors and furniture spanning a variety of materials including bronze, translucent cristalle resin, lacquers and stone finishes. The exclusive range of handles share an individual house-style with a particular focus on tactile patterns and surfaces, in keeping with the current taste for layering textures within a subtle colour palette. To make the 20th anniversary, Haute Déco's founder and creative director Marie-Véronique Swannell has designed a wealth of new styles including the Sensation doorknobs collection.

Starting from the concept behind the iconic Signature collection – bronze elements encapsulated in crystal resin take on an ethereal quality when seen through the prism of the resin wrap – and taking it one step further, the collection brings together two strands of Haute Déco's unique savoir-faire. Sensation doorknobs incorporate textured bronze elements featuring semi-abstract organic patterns, embedded in crystal resin like Signature handles.

Whilst the techniques and materials used to produce both collections are the same, Sensation doorknobs belong to an entirely different and totally unique aesthetics. Sensation is all about the pattern embossed in bronze, exploring how the crystalline resin layer can transcend both motifs and materials. The motif is reflected to the surface of the knob, seemingly filling the contour formed by crystal resin, so that the entire knob appears to be made of liquid bronze. Hand-polished and buffed to an incredibly soft finish, Sensation doorknobs are in a league of their own. The collection comprises coordinated knobs for doors and furniture, and is available in gold, bronze and nickel. **For more information, visit www.doorknobshop.com.**

PLAY EQUIPMENT | PLAYWORLD SYSTEMS INC

CT-ART Creation and Playworld Systems will launch a new play equipment called the "Unity Collection" on 31 March 2015 in Singapore. More than 50 people have been invited for the launch and Playworld Systems will bring along strategic partners from Asia Pacific. The event will showcase the latest and most innovative products and the company's guests will also get insight into exciting new playground solution scheduled to be launched later in the year.

The Unity Collection is "Retro" equipment redesigned with new play patterns, more challenging, for jumping, crawling, balancing, rolling, weaving and even just for chilling out. They are independent and creates a visual impact to the landscape. It comprises of Unity Dome, Unity Rushmore, Unity Slide Climber, Unity Teeter Tunnel, Unity Canopy, and Unity Steppers.

Unity Dome

This dome made up of intricate circles and lines that lead to all sorts of challenging play adventures. Kids can sit, play with one another, create games, and challenge one another. Unity increases upper body strength, improves coordination, and brings everyone together and invites all to play. Unity is accessible and inclusive. Various levels of height for rings and rungs provide opportunities for those in wheelchairs to grab on and pull themselves up out of their chairs.

Unity Rushmore

A hill is a fantastic environment for play: running up and rolling down. However, not every child lives in an area where there are hills to experience that kind of play and most play spaces are constructed on a flat, level surface. Unity Rushmore brings the "thrill of the hill" to the playground. Unity Rushmore has all the visual impact of a hill with a large capacity for kids to play. It prompts creativity, teamwork, and plenty of action. A wide variety of play patterns are possible – jumping, crawling, walking, rolling, weaving, and even just chilling out.

Unity Slide Climber

The traditional slide has been updated for today's youth, with new ways to interact and play with both the equipment, as well as one another. Multiple climbers let several children climb at a time – challenge each other as to who can reach the top first to slide down, or just hang out in the tube at the top, then do it all over again!

Unity Teeter Tunnel

The design of the Unity Teeter Tunnel allows a large group of kids to share the experience but is still fun for two. Kids can hang out in the tunnel while other kids do all the "work". Everything about this activity centers on balance and cooperation –children need to communicate with one another in order to keep the Teeter Tunnel in motion. Kids can experience the Unity Teeter Tunnel standing, sitting, or even lying down. As the piece is in motion, kids work harder to stay balanced, engaging their core muscles.

Unity Canopy

Unlike traditional monkey bars, the Unity Canopy is designed to provide multiple points of access with a nonlinear path of exploration. It's not just about getting from point A to point B; it's the journey that matters! The arrangement of circles and rungs in an organic flow lets a child move forwards, backwards, side-to-side, and climb up through to explore the top of the equipment and even hang out above.

Unity Steppers

The multi-functional Unity Steppers create practical solutions for connecting various pieces of equipment through play linking, inviting users to use different play equipment; suggest routes through a play area, creating challenging paths for children and pretend-play opportunities like crossing rocks in a river or staying out of the way of flowing hot lava. They become a focal point for activity while also providing areas for rest for kids and adults.

For more information, contact CT-Art Creation Pte Ltd in Singapore at tel (+65) 6762 9891, fax (+65) 6762 7980, e-mail enquiry@ctart.com.sg or visit www.ctart.com.sg.

EMBRACE CURVED WETROOM PANEL | ROMAN LIMITED

Roman, a market leading shower designer and manufacturer, has launched the sweeping curves of their Embrace Curved Wetroom Panel which is a product developed from designs within the hotel sector.

The Embrace Curved Wetroom Panel exudes style and luxury, with its height of 2000mm and 8mm glass thickness and it provides effortless level access entry for all users. It is a truly inclusive product as there is no step up into the shower and no handle and it presents wide entry access for all users. The Wetroom Panel incorporates contemporary chromed brass wall bracing to ensure full support and maintain the position of the Wetroom Panel.

It features a bright silver frame, including 25mm of adjustment, which helps to perfectly install the Wetroom Panel into the specific situation. This Wetroom Panel is available for use in an alcove situation and also in a corner situation, which will be accompanied with a side panel. It is fully reversible for left or right hand installation.

The Curved Wetroom Panel can be installed on to a standard rectangular shower tray or straight to floor using Roman's Shield Wetroom System. When wetroom panels are installed on to a low level shower tray it simulates a wetroom look, it removes the traditional step up into the showering area and offers level access entry. It incorporates an adjustable chromed brass panel foot, which easily adapts to the height of the tray, so all different height trays can be installed with the flexible Curved Wetroom Panel.

Roman's new Embrace Curved Wetroom Panel joins their growing range of Wetroom Systems, which present complete minimalism and inclusivity in the showering area. Roman's collection of wetroom shower panels incorporates a variety of different styles, from totally minimalist versions in their Decem range, through to curvaceous options in their Embrace and Lumin8 ranges. Roman presents a wide range of sizes to suit your individual space and in both corner and linear versions. The Embrace Curved Wetroom Panel is pre-coated with Roman Ultra Care, Roman's unique glass protection system, which promotes easy cleaning and lasting clarity and sparkle of the glass. It also carries, like all of Roman's Shower Enclosures, Roman's service backed Truelife Lifetime Guarantee.

David Osborne, Managing Director of Roman, commented: "The introduction of our Embrace Curved Wetroom Panel is a valuable addition to our inclusive range of products, with its level access entry, no handle and wide entry access into the showering area. It's a modern and flexible addition to any bathroom as it will work around existing fittings and fixtures with its door less entry, which also makes it the perfect product for the busy domestic bathroom."

For more information, visit www.roman-showers.com.

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