Roof & Facade
Framework for Sustainable Development

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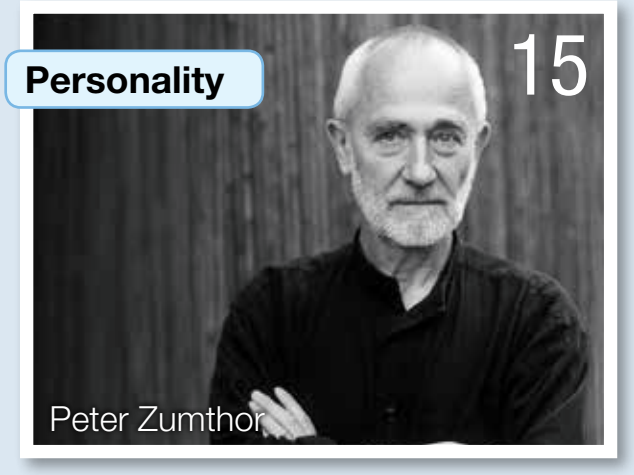

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EDITORIAL

While progress has been made towards improving productivity in the construction sector, more needs to be done in the next few years to meet the desired productivity target.

At the opening of the Singapore Construction Productivity Week (SCPW), Ms Grace Fu, Minister in the Prime Minister's Office, Second Minister for the Environment and Water Resources and Second Minister for Foreign Affairs, outlined three areas to further transform the sector. These include making prefabrication more prevalent, raising the quality of the construction workforce and promoting greater integration across the construction value chain.

The Building and Construction Authority (BCA) is also working on the second Construction Productivity Roadmap to bring the sector's productivity drive to the next higher level. Details of the roadmap will be released next year.

Roof and Façade will bring timely updates to our readers on this including the latest projects, products and the BIM industry.

Happy reading !

McGraw Hill and Autodesk Report Government Policy as Key Driver of Smart Building in Singapore

In partnership with Autodesk Inc. (NASDAQ:ADSK), McGraw Hill Construction released a new SmartMarket Report: The Business Value of BIM for Building Owners during the Singapore Construction Productivity Week. The report shows Singapore as a global frontrunner of Building Information Modeling (BIM) adoption across the architecture, engineering and construction industry, with government policy as a key driver. Singapore has been featured in this diagnostic study and audit – which researched over 20 of the major construction marketplaces globally and looked closely at countries with national BIM mandates – UK, Singapore and Scandinavia (Denmark, Finland and Norway).

BIM is an intelligent, model-based design process that adds value across the entire lifecycle of building and infrastructure projects. According to the report, owners in Singapore are seeing the potential in BIM, with some of the top-tier architecture, engineering and construction (AEC) industry players now being BIM-ready. A recent Singapore's Building and Construction Authority (BCA) survey reveals dramatic

growth in the use of BIM in the construction industry growing from 25% in 2009 to 76% in 2013.

"The most critical driver of BIM use in Singapore has been the national BIM mandate," said VR Srivatsan, Managing Director of Autodesk ASEAN. "With government continuing to make infrastructure development a high priority, the adoption of BIM is a necessary step towards minimizing lifecycle building costs and improving the design quality of the built asset."

Srivatsan added, "With the SmartMarket Report, Autodesk has helped analyze the profiles of building owners whose paths to BIM can serve as an inspiration to other owners interested in starting or accelerating their BIM adoption process."

The findings reveal the influence that governments can have on the implementation of BIM in economies like Singapore and UK. Through the administration of Singapore's BCA, the country's BIM mandate and road map aim to improve industry productivity so that Singapore-based companies can compete with international firms for work in-country, thus supporting the industry's employment figures and revenue.

"The desire to advance innovation and become an industry leader is most explicit in the BIM policies of Singapore and UK. The impact of a BIM mandate is ensuring that their construction sectors become more globally competitive," said Harvey M. Bernstein, Vice President, Industry Insights & Alliances, McGraw Hill Construction. "Owners are the greatest beneficiaries of BIM. We hope they will align BIM use with their specific goals, engage more effectively with all stakeholders and extend the value of BIM beyond construction into facility management.

Factors that support Singapore's ability to create a country-wide mandate are Singapore's efficient government decision-making and tradition of embracing technology, enabling it to set forth progressive requirements regarding the use of BIM.

"While there is currently interest among owners to learn how BIM can be used post-construction, most owners are at the very early stages of awareness and understanding. We intend to address this gap by giving more emphasis to owners and developers," observes Dr. John Keung, CEO, Building and Construction Authority (BCA). "We need to help bring facility managers and operators on board. We have a great deal of work to do now, in helping them see the pathways to increased productivity of their work through BIM. Bringing BIM into the full lifecycle of the building will increase its value for owners and help them to see deeper benefits from its use on their projects."

'The Business Value of BIM' SmartMarket Report was produced by McGraw Hill Construction in partnership with Autodesk and Skanska. Contributing partners who made this report possible were Balfour Beatty Construction and Mortenson Construction. Additional support was provided by AIS, the buildingSMART alliance and Hensel Phelps.

Brisbane Skytower Approved for Launch

Brisbane's tallest building has been given the green light, with the AUS $1 billion (US $878 million) project to tower 270 meters over the central business district.

The twin-tower project, known as Brisbane Skytower, will be the highest building in Brisbane, beating Meriton's Infinity by 12 meters.

No Brisbane building can be built higher, because the Civil Aviation Safety Authority restricts building height to avoid interfering with aircraft radar signals. It is expected to be the third-highest building in Australia, behind the 322-meter Q1 on the Gold Coast and 297-meter Eureka Tower in Melbourne.

The project, previously known as 111 + 222, will include a 90-story tower at 222 Margaret Street with 1100 residential apartments as well as a 42-story, 131-meter-high tower at 111 Mary Street.

The smaller building will be a premium 4-5 star hotel, with more than 300 rooms and 95 apartments.

Cafes, bars, a ballroom, and retail stores are expected to make up the ground floor of the project, while there will be a "sky recreation deck" at the top of the 90-story building, which is being developed by Sydney-based developer Billbergia and AMP Capital.

A five-year construction timeframe has been forecast.

There have been three attempts to build a high-rise on the site.

In March 2005, there was approval for a 72-story residential and office building, while in March 2007 the 70-story Vision building was given approval, though that project was cancelled.

The 90-story 111 + 222 project was first approved in November 2011, but with a very different plan, consisting of a 37-story commercial building and 90-story hotel and apartment building.

Educational Buildings

Oakridge International School sits on a 10 acre campus on the outskirts of Bangalore. This Pre-K to Grade12 school is designed by award winning Education Design Architects (Indian arm of Fielding Nair International, USA) as a day boarding school to cater to 3,200 students with a total eventual built up area of 25,000 square meters. The site comprises of three main blocks, a global learning center (GLC) and two academic blocks. The buildings on campus are laid out such that there is abundant indoor-outdoor connection, there-by providing vistas and views. All the buildings look into the main football field which is central to all.

Phase I includes GLC (Global Learning Center), thesignature building that houses kindergarten, administration zone, co-curricular amenities along with rest of the site infrastructure. The mainentry to the GLC is warm and welcoming, the intermediate steel and glass canopy isintroduced to bring down the scale of theentrance so that the experience is not too overwhelming. The rock climbing wall towards the entry area is designed as a feature wall. The juxtaposition of learning studios with decks and terraces enables learning activities to happen indoors as well as outdoors. North facing learning resource center provides ample diffused light that are conducive from a learning stand point. Various terraces provided at first floor level enable the extension of the dance and yoga studios into the outdoors. They also form viewing galleries for various sports activities.

Key Design Concept Ideas:

- Flexibility of indoor spaces and furniture enables various modes of learning as well as spaces to be used for a varied range of activities.
- Indoor outdoor connections.
- Vistas and views from maximum areas of the site.
- Integrated and functional landscape neighboring the buildings so that efficiency is maximized.
- Child friendly materials and furniture.
- Majestic yet welcoming entries to buildings.
- The buildings and various site features are designed such that they can be used as educational tools by the students. The windmill installed at the site is one such example.

The buildings comprise of RCC structures and concrete block masonry for the walls. The signature element of the GLC building is the roof over the multi-purpose hall which includes trusses and insulated galvalume sheeting as the roofing material. This roof drops down over the play pen area there by creating a canopy over it, supported with steel columns which also form an elevation feature.

Exterior windows are operable with single glazing and aluminum frames. Cladding in various parts of the façade acts like an accent to the exterior façade.

OAKRIDGE INTERNATIONAL SCHOOL

- The first ‘LEED Gold’ school in Bangalore

Environment Friendly Features:

Oakridge International School is a LEED GOLD certified campus. Green features have been incorporated in the project since design conception.

- Use of natural light and ventilation to reduce the load on mechanical equipment.
- Use of indigenous materials.
- Passive cooling strategies like providing water bodies in the interior.
- Reduction of heat gains from the west and south directions.
- Reduction of heat island effect by providing roof with high solar reflectance index.
- The granite cladding is indigenous to Bangalore, and thus relates to the local materials.
- Pavers with grass joints for ground water percolation.
- Rain water harvesting.
- Re-use of recycled grey water for flushing and landscaping purposes to reduce the demand on potable water.
- Use of renewable energy by introducing solar PV panels and windmills on the site.

Project Credits:

Designer: Education Design Architects / Fielding Nair International
Principal Architect: Dr.Michael van Hamel, UIA PhD
Project Head: Ms. Mugdha Thakurdesai, M.Arch, LEED AP