Productivity Achievements Lauded at BCA Awards 2014

More firms inducted and honoured this year p03

Let’s Get Used to Robots in Construction Sites

BIM for Analysis and Simulation

Upgrade and Retain Higher Skilled Workers
Dear readers,

We have been on a short hiatus, working to give Build Smart a brand new look. Now we’re back to share more case studies and best practices, as well as the latest policies and happenings in the industry.

There have been a lot of activities going on over the past few months. In May, we held the annual BCA Awards where we conferred accolades on our builders, developers and architects to recognise them for the good work done in driving construction productivity. In the next few issues, we will be featuring some of the award winners, who will share their motivations to improve productivity in their work processes.

Indeed, to remain competitive in the industry, it is necessary to think out of the box and find new ways to improve existing work processes and construction methods. Innovation should be the new constant, especially when it comes to building skills and technology.

Earlier in May, Minister Khaw Boon Wan blogged about how robots could well change the way buildings are built in the future. In Singapore, we could still consider or explore ways for robots to do the assembly in pre-programmed patterns. While it is not yet possible to automate the entire building process, robotic intervention could bode well for the industry when they replace labour intensive and inefficient work like tiling.

In order to provide a platform for the industry to showcase advanced technologies and tools that will help boost productivity, BCA will once again work with Sphere Exhibitions to put together the Singapore Construction Productivity Week from 13–16 October this year. Don’t miss the opportunity to learn about best practices and new technologies in the industry. More details can be found in this issue.

If there are any features that you’d like to read about, please feel free to drop the editorial team a note and give us your feedback and suggestions.

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Dr John Keung
Chief Executive Officer
Let’s Get Used to Robots in Construction Sites

Minister Khaw Boon Wan’s blog post about the potential advent of smart machines

One of the most labour-intensive processes in construction is tiling.

Each year, over 40 million tiles are laid in new construction projects here. There is therefore great potential to automate the tiling process and make it more labour-efficient.

Our researchers at the Singapore-ETH Centre Future Cities Laboratory (FCL) and ROB Technologies have conceptualised and developed a robotic tiling prototype for automated floor tiling. This is still at the research stage. But if the robot becomes commercially available, the estimate is that the robotic tiling machine can lay tiles two to three times faster than a human tiler. An added advantage is that robots can deliver high precision and consistent quality.

Such a robot will be able to work alongside workers at a construction site and do the menial task of laying floor tiles while workers focus on higher-value added work such as rediling and grouting the tiles, and cutting odd-sized tiles to fit the corners.

The arithmetics are impressive. While it takes two tilers two working days to complete a three-room HDB flat, the same two tilers in two working days can do four such flats, if they have the help of four robots. This is a four-fold jump in productivity!

With backbreaking tiling work done by the robot, and manual labour reduced by as much as 75 per cent, this advanced technology can also reduce the risk of worksite accidents.

Robotics is not new, but we hardly see it in our construction sites. The Building and Construction Authority would be happy to provide some funding support to help change the status quo.

Source: https://mndsingapore.wordpress.com/2014/05/20/lets-get-used-to-robots-in-construction-sites/

Let’s Get Used to Robots in Construction Sites

Minister Khaw Boon Wan’s blog post about the potential advent of smart machines

At this year’s BCA Awards in May, BCA gave out the Construction Productivity Awards (CPA) comprising the CPA – Advocates and the CPA – Projects categories.

The CPA – Advocates recognises outstanding developers, consultants, builders and sub-contractors for their achievements in improving productivity at the firm level. This year, nine firms were recognised for their productivity efforts compared to six winners last year. Under the CPA – Projects, sub-category, nine teams were recognised for their efforts in improving the productivity of their projects – seven of which were residential projects.

Dr John Keung, CEO of BCA said, "Unlike last year, this year’s winners demonstrated a wider variety of productivity initiatives, ranging from the use of high-tech and precast technology, adoption of good industry practices, workforce development and collaboration among project parties. This reflects greater industry awareness of solutions to improve productivity, which is important in enabling the sector to transform into one that is integrated, efficient and technologically-advanced.”

Having more firms inducted this year truly bodes well for the built environment sector. Congratulations once more to the winners!

CPA – ADVOCATES

<table>
<thead>
<tr>
<th>Award</th>
<th>Firm</th>
<th>Type of Award</th>
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<tbody>
<tr>
<td>Gold</td>
<td>Arup Singapore Pte Ltd</td>
<td>Consultant – Civil &amp; Structural</td>
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<tr>
<td>Gold</td>
<td>Langdon &amp; Seil Singapore Pte Ltd</td>
<td>Consultant – Quantity Surveying</td>
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<td>Gold</td>
<td>Antara Koh Private Limited</td>
<td>Builder – Open</td>
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<td>Gold</td>
<td>Huai Siah Construction Pte Ltd</td>
<td>Builder – Open</td>
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<td>Gold</td>
<td>Samwoh Corporation Pte Ltd</td>
<td>Builder – Open</td>
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<tr>
<td>Gold</td>
<td>Straits Construction Singapore Pte Ltd</td>
<td>Builder – Open</td>
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<tr>
<td>Gold</td>
<td>Tiong Seng Contractors Pte Ltd</td>
<td>Builder – Open</td>
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<tr>
<td>Gold</td>
<td>Sterling Engineering Pte Ltd</td>
<td>Builder – Prime</td>
</tr>
<tr>
<td>Merit</td>
<td>Koh Brothers Building &amp; Civil Engineering Contractor (Pte) Ltd</td>
<td>Builder – Open</td>
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CPA – PROJECTS

<table>
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<tr>
<th>Award</th>
<th>Project</th>
<th>Team Members</th>
<th>Type of Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>Punggol East Contract 33</td>
<td>Housing and Development Board, Surbana International Consultants Pte. Ltd., Qinqing International (South Pacific) Group Development Company Pte Ltd</td>
<td>Residential Non-Landed &gt; 25,000m²</td>
</tr>
<tr>
<td>Gold</td>
<td>NV Residences</td>
<td>City Developments Limited, Ong &amp; Ong Pte. Ltd., KTP Consultants Pte Ltd, Squire Mech Pte Ltd, Tiong Seng Contractors Pte Ltd</td>
<td>Residential Non-Landed &gt; 25,000m²</td>
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<tr>
<td>Gold</td>
<td>EPC of Jetty of Singapore LNG Terminal Project at Meranti Crescent, Jurong Island</td>
<td>Singapore LNG Corporation Pte Ltd, Stein Consultants Pte Ltd, Antara Koh Private Limited</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>Gold</td>
<td>Conservatory Complex at Gardens By The Bay</td>
<td>Gardens By The Bay, CPG Consultants Pte Ltd, Meinhardt Infrastructure Pte Ltd, Woh Hup (Private) Ltd</td>
<td>Institutional and others</td>
</tr>
<tr>
<td>Gold</td>
<td>Lush on Holland Hill</td>
<td>SP Holland Hill Pte Ltd, Liu &amp; Wo Architects Pte Ltd, Fong Consultant Pte Ltd, Rankine &amp; Hill (S) Pte. Ltd., Sings Development Pte Ltd</td>
<td>Residential Non-Landed &lt; 25,000m²</td>
</tr>
<tr>
<td>Gold</td>
<td>Bukit Merah RC 23</td>
<td>Housing and Development Board, Surbana International Consultants Pte. Ltd., China Construction (SP) Dev Co P/L, National University of Singapore, MKPL Architects Pte Ltd, KTP Consultants Pte Ltd, Tiong Seng Contractors Pte Ltd</td>
<td>Residential Non-Landed &gt; 25,000m²</td>
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<tr>
<td>Gold</td>
<td>NUS Kent Vale</td>
<td>National University of Singapore, MKPL Architects Pte Ltd, KTP Consultants Pte Ltd, Tiong Seng Contractors Pte Ltd</td>
<td>Residential Non-Landed &gt; 25,000m²</td>
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More firms inducted and honoured this year for their efforts in furthering productivity.
What spurred Sterling Engineering to look into the mechanisation of its processes?

Productivity is an ongoing concern for any organisation. The Government’s push for productivity is a catalyst for firms to relook at their processes and make changes to generate higher output. For us, mechanisation is the fastest and most straightforward way to move ahead.

Could you describe how some of these processes work?

Most of our mechanisation processes are geared towards automating labour intensive processes. To meet our objectives, we acquired machines like the Automatic Cutting Machine, five-ton Motorised Gantry Crane and the Automatic Pipe Profile Cutter.

Were there any challenges at the beginning? What were they?

At first, it was difficult to get everyone to understand the productivity benefits of skills upgrading, especially when we had project deadlines looming. It really helps that our top management is completely committed to pushing productivity.

Could you give an example of how new processes help improve productivity?

The conventional method of cutting odd-sized steel plates involves several cumbersome steps: cutting the steel plate to the nearest dimension of the odd-sized plate, marking out the centre of the plate and marking out the shape by pivoting the centre of the plate. This involves one worker performing hot works and another worker on stand-by with a fire extinguisher for safety. The plate is very crude in finishing so further grinding is required – another unproductive investment of manpower and time. One odd-sized plate takes about 20 minutes to produce.

With the CNC Plasma Cutting Machine, drawings of odd-sized plates are created using CAD software. The drawings are then transferred to the control panel of the CNC Cutting Machine via USB. The entire steel plate is placed onto the cutting table of the CNC Plasma Cutting Machine and the machine proceeds to cut the desired odd-sized and quantity from the entire steel plate. A single piece takes approximately 3 to 7 minutes to execute.

Greater productivity is achieved in terms of reduced manpower, more efficient use of time, greater accuracy of material dimensions and overall cost savings for the company.

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Greater productivity is achieved in terms of reduced manpower, more efficient use of time, greater accuracy of material dimensions and overall cost savings for the company.

Advantages of the CNC Plasma Cutting Machine

1. Odd-sized plates up to 20mm thick can be cut in a single session and the time taken is about 15 times faster than conventional methods.
2. Only one man is required to operate the CNC Plasma Cutting Machine.
3. Less preparation work is required.
4. It is much safer as constant handling of the steel material can be avoided.
5. Human error and material wastage are minimised as the CNC Plasma Cutting Machine can cut to pin-point precision.
Q1.是什么促使Sterling Engineering开始探讨如何将公司的工作流程机械化？

对任何一家机构而言，提高生产力是一项持续关注的课题。政府积极推广提高生产力计划，促使了各企业重新检讨它们的工作流程，并作出一些改变。我们认为将公司的工作流程机械化是迈向更快速及最直接的方法。

Q2.您是否能够举例说明新的工作流程如何帮助提高生产力？

有了电脑数值控制等离子切割机，非标准尺寸钢板的蓝图先以计算机辅助设计软件画出，然后将蓝图通过USB接口转移到电脑数值控制等离子切割机。接着，将整个钢板放置到切割台上，然后该机器会从整个钢板中切割出所需轮廓的不均等钢板尺寸及数量。切割一片钢板需用上3到7分钟。

通过减少人力需求，更有效率地利用时间，在材料尺寸方面更加精准以及为公司整体上达到节约，我们实现了更高的生产力。

Q3.您能否举例说明新的工作流程如何帮助提高生产力？

一般切割非标准尺寸的钢板的方法都涉及几个繁琐步骤，即切割非标准尺寸钢板最接近的尺寸、划出钢板轮廓以及沿着钢板中央轮廓划出形状。这过程需要一名工人进行热工作业和另一名工人预备灭火器以策安全。在这过程之后的钢板边缘是非常粗糙的，所以必需进行额外磨光。这是一项费力、费时，又不具生产力的工程。一片非标准尺寸的钢板通常需要花上20分钟来制造成型。

Q4.您是否能够举例说明新的工作流程如何帮助提高生产力？

在钢板上划出边线一般切割方法后的粗糙表面，需要进行额外磨光。

Q5.新加坡建设局给予什么样的援助以助您实行这些改变？

新加坡建设局发起了一系列生产力倡议，并帮助我们找出了可重点关注的方案，如采用石膏板及预制技术等。机械化奖励计划（MechC）对Sterling Engineering非常有帮助，而我们使用了该计划以额外获得的生产力。我们也通过建筑信息模型（BIM）基金购买了制作模型软件Tekla，并且也动用了人力培训及提升计划（WTU）让员工进行培训与技能提升。

Q6.哪些提高生产力计划是您实行了或将会实行的，如人力培训等？

我们正在发展一项符合建筑业技工注册计划的内部培训计划。建筑业技工注册计划的框架提供了技能提升项目以及所需要达到的持续教育与培训（CET）标准。我们也利用了SIMTech探讨一种减少装配时间，同时提高安全性起重机技术。

Q7.为什么在新加坡的建筑环境中推动生产力如此重要？

政府积极推广提高生产力计划，促使了各企业重新检讨它们的工作流程，并作出一些改变。我们认为将公司的工作流程机械化是迈向更快速及最直接的方法。提高生产力是达到经济转型、制造高价值行业并且为新加坡人提供高素质工作职位的唯一途径。越早采用更具生产力的工作方式，就越早受益。

Q8.获颁新加坡建设局奖项对您的公司有什么样的意义？

能够与建筑业内知名企业一同受到表扬是极大的鼓励。但是，对我们来说，这绝对是生产流程的终点。我们必定再接再厉，继续探讨更具效益的工作方案。
BIM FOR ANALYSIS AND SIMULATION

Tools for a sustainable, environmentally-responsive built environment

It has become increasingly essential to design and build an environmentally responsive and sustainable built environment to mitigate global warming and its associated climate change. High performance buildings use less energy, water and materials. The use of Building Information Modelling (BIM) technology for building design performance through simulation and analyses could ensure the effective use of these resources for a more sustainable, environmentally-responsive built environment.

Different analyses will require different models and different tools. Here, we share three types of analyses that BIM can be used to perform simulation and analysis.

BIM for Building Airflow Modelling

Building Airflow Modelling is Computational Fluid Dynamics (CFD) airflow modelling and simulation, coupled with the geometry input from a BIM 3D model. It enables airflow simulation over an estate landscape and within the building interior to be conducted as a design optimisation and assessment tool towards achieving a comfortable, naturally ventilated building environment in the Tropics.

Benefits:
- Cost effective
- Improved turnaround time (from 2 weeks to potentially less than 2 days)
- Motivates architects and consultants to widely adopt the tools to implement good natural ventilation strategies at the early design stage

An example of a building airflow modelling tool is the Green Building Environment Simulation Technology (GrBEST). BCA worked with A’STAR’s Institute of High Performance Computing and local industry practitioners, Building System and Diagnostics Pte Ltd and RightViz Solutions Pte Ltd to develop the GrBEST as a simple, efficient and cost effective CFD solution.

It aims to assist green building practitioners to meet the CFD simulation requirements for natural ventilation under the BCA Green Mark scheme. It also helps to improve productivity for the industry as the turnaround time is reduced drastically. With funding support from the Ministry of National Development, the pilot version of GrBEST was launched for trial in March 2014.

To find out more about GrBEST, contact: Dr Poh Hee Joo, A’STAR – IHPC
Email: pohhj@ihpc.a-star.edu.sg

Contributed by:
Dr Poh Hee Joo, Institute of High Performance Computing, A’STAR
Mr Wong Nguyen Chung, Principal Manager, Centre for Sustainable Buildings & Construction, BCA

BIM for Energy Modelling

Energy Modelling allows the design of a building to be analysed and optimised for energy efficiencies. Energy Modelling tools are used to help calculate a building's expected energy demand and the estimated costs needed to meet that energy demand during the design phase.

The building information inherent in the 3D model is passed to simulation engines for parametric analysis and energy simulation.

Benefits:
- Improve building energy predicton accuracy
- Optimise building design for better energy performance efficiencies

An example of an Energy Modelling tool is Integrated Environmental Solutions (IES)’s Virtual Environment that models not only energy use but also daylighting, CFD and other attributes based on a shared model of the building.

Contributed by:
Mr Rohan Rawte, Associate Director, Integrated Environmental Solutions Limited

BIM for Computational Fluid Dynamics (CFD) Simulation

CFD simulation is a powerful tool that can help you analyse fluid flows and heat transfer both inside and outside your building design. For example, software like Autodesk Simulation CFD can help users get more accurate quantitative results to optimise the airflow and thermal comfort of interior rooms and spaces.

By using CFD analyses in conjunction with BIM to understand the forces and effects of fluid dynamics throughout the design process, critical design decisions can be made to reduce energy consumption and improve the efficiency of buildings.

To illustrate how CFD has helped the healthcare industry, Huntair – a leading designer and manufacturer of specialised heating, ventilating and air conditioning (HVAC) systems – used both Autodesk Simulation CFD and Autodesk Inventor software to develop its CLEANSUITI system. Inspired by the semiconductor and pharmaceutical industries, they employed a single diffuser approach to minimise turbulence and control the direction of air in the operating room, and successfully reduced re-infection.

In the case of data centres, simulating for optimal running performance temperature of the Computer Room Air Conditioning (CRAC) requires a good BIM model and good planning. Building factories of the future require LEAN strategies to be employed to reduce energy consumption. The ability to use a BIM model for CFD analysis early on in the design cycle allows for flexibility of adjustments to the model later on.

Contributed by:
Ms Lyn Chua, Solutions Specialist, Manufacturing, Autodesk ASEAN

Images shows simulated particle trace of airflow from modified air diffuser system
(Image courtesy of Huntair, Inc.)

CFD helps to analyse fluid flows and heat transfers both inside and outside a building design.

Benefits:
- Make more informed decisions to help optimise operation and maintenance costs for building owners
- Obtain more accurate quantitative results to optimise airflow and thermal comfort for interior spaces

Using the 3D model from BIM and computational fluid dynamics, airflow and thermal response of a new building design are simulated.

Contributed by:
Ms Lyn Chua, Solutions Specialist, Manufacturing, Autodesk ASEAN

Four Seasons in New York

01. Image of airflow modelling and simulation (Image courtesy of A’STAR, IHPC)

02. Internal CFD studies were used to predict micro air movement and radiance studies helped predict daylight distribution within the atrium and open plan office areas for the Public Works Building, Ireland 03. IES software was used to optimise the HVAC design of five star luxury building – Four Seasons in New York

04. Images shows simulated particle trace of airflow from modified air diffuser system (Image courtesy of Huntair, Inc.)
In May this year, BCA led 30 delegates from both government agencies and industry firms on a 5-day learning visit to learn about new technologies in Italy and the UK. The Construction Productivity Centre (CPC) had previously identified a number of productive technologies for adoption in Singapore. This learning trip was organised to widen the exposure of industry stakeholders to impactful construction technologies, specifically PPVC and PBU technologies.

PBU, also known as a bathroom pod in Europe, is widely used in hotels, dormitories, military housing, apartments and hospitals there. As part of the industry practice in Europe, a prototype PBU is produced for the owner’s confirmation prior to mass production. This ensures that every item is in order and correctly installed. Each PBU goes through quality tests e.g. waterponding tests for leakage and pressure tests for all piping in the factory before being sent on site for installation – 20 units of PBUs can be completed by just four installers in a day.

In Singapore, the seeding of PPVC awareness and adoption have started to bear fruit. The first PPVC project was awarded recently; BBR Holdings will adopt Australia’s Unitised Building (UB) System to build the first student hostel in Nanyang Technological University (NTU). To develop the skills and competencies of local designers and builders in this advanced technology, delegates met with London consultants and fabricators of PPVC. They helped our designers and builders gain a better understanding of the problems and solutions. Compared to London, the adoption of PPVC has plenty of room to grow here.

UK builders also face problems such as shortage of skilled workers as well as uncertainty in material supply and project delivery. However, PPVC adoption is the ideal solution to ensure the timely delivery of projects. Caledonian Modular, one of the largest PPVC manufacturers showed our delegates the versatility of PPVC, which has great potential for use in developments with regular room sizes and repetitive layouts like classroom blocks, hostels, hotels and other accommodation types of development.

Three PPVC systems in Singapore obtained in-principle acceptance from various regulatory agencies through the Building Innovation Panel (BIP). In the meantime, more PBU systems will be assessed through BIP to meet expected higher demand in coming years. Many delegates were keen to explore the feasibility of applying the technologies in Singapore. Developer OUE Airport Hotel Pte Ltd expressed optimism about the future of PPVC.

Mr Tan Lye Woo, Project Director said, “With tighter manpower allocations and reduced reliance on foreign workers, offsite construction could help optimise our scarce resources to attain higher productivity, especially at a project site that is highly constrained like the airport.”

City Development Limited (CDL), a strong supporter of Singapore’s productivity movement, opined that higher adoption of PBU could further improve the site productivity significantly.

“CDL has been advocating the adoption of PBU as it cuts down the wet trades on site to the minimum. This enables the builder to plan site construction activities more effectively”, said Mr Anthony Chia, Executive Vice President (Projects).

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Project Director, OUE Airport Hotel Pte Ltd
Upgrade and Retain Higher Skilled Workers

Get funding for BCA’s CoreTrade and Multi-skilling scheme

Skilled and experienced workers are undoubtedly assets. To retain such workers, employers can help them upgrade to become “higher skilled” workers via the CoreTrade or Multi-skilling scheme by BCA. Aside from levy savings, higher skilled and experienced construction personnel also enjoy an allowable period of employment of up to 22 years.

Last year, the Continental Education Training (CET) requirement was introduced for the renewal of CoreTrade and Multi-skilling registration. CET courses cover the latest codes and regulations, good practices as well as demonstration of new methods, materials, tools and equipment relevant to specific construction trades. In addition, course participants learn about registered personnel’s areas of responsibility and new developments in the built environment.

Having an experienced and higher quality workforce to improve construction productivity is critical to the industry. Employers can make use of the popular Workforce Training & Upgrading (WTU) scheme under the Construction Productivity and Capability Fund (CPCF) to defray the costs of upgrading workers. The WTU scheme co-funds the training and test fees of construction personnel leading to CoreTrade and Multi-skilling registration.

To date, over 4,900 companies have submitted more than 57,000 funding applications under the WTU scheme to BCA. Eligible workers for CoreTrade and Multi-Skilling can undergo training and skills assessments at BCA Academy or any of the 28 Approved Training and Testing Centres (ATTCs) in Singapore.

For details on the ATTCs, please visit: www.bca.gov.sg/CoreTrade/others/AttCcontacts.pdf

LEY CHOO CONSTRUCTION AND ENGINEERING PTE LTD

Ley Choon ATTC offers 5 CoreTrade and 5 Multi-skilling trades –

- Bulldozer operation
- Excavator loader operation
- Hydraulic excavator operation
- Track shovel operation
- Underground pipe jacking

To suit course participants, training sessions are conducted in the evenings from Mondays to Saturdays. Training can be conducted in English or Tamil.

“We would like to express our appreciation to Mr Velmurugan who is a very approachable and friendly trainer. He helped our workers identify their weaknesses and improve in their work.”

– Ong Ye Wen, Assistant, Builders 265 Pte Ltd

“We would like to express our appreciation to Mr Velmurugan who is a very approachable and friendly trainer. He helped our workers identify their weaknesses and improve in their work.”

– Kelvin Koh, Senior Executive, Multi Ways Equipment Pte Ltd

Company’s office address

3 Sungei Kadut Drive, S729556

ATT’s location

154, Seletar North Link, Punggol Barat (near Punggol MRT)

Tel: (65) 6757 0900 ext 3556  Mobile: 8112 3990  Fax: (65) 6757 0100

Email: Ms Liew Qian Wei at training@leychoon.com

Visit www.leychoon.com for more information.

SIGMA BUILDERS PTE LTD

Sigma ATTC offers 4 trades –

- Cladding Installation
- Doors and Windows Installation (Aluminium)
- Glazing
- Curtain Wall Installation

The training sessions are conducted from Mondays to Saturdays. Training is available in English, Chinese, Thai or Tamil.

“Sigma provides a comprehensive training programme that helps our workers acquire the necessary trade skills. The trainers are helpful and patient and their admin staff provide good customer service.”

– Mr Ng Lian Teng, Managing Director, Teng Sing Construction Pte Ltd

“We are happy with sigma for providing good admin support for enrollment. They are flexible in accommodating our requests with regards to the training schedule. The trainers are approachable and able to establish good rapport with our workers.”

– Mr Tan Kok Leong, Managing Director, YKK AP Singapore Pte Ltd

“We would like to express our appreciation for the quick response to our queries and for the help with training and test schedules given to our workers.”

– Ms Shirley, Manager, Seiko Architectural Wall Systems Pte Ltd

ATT’s location

106 Gul Circle, Singapore 629592 (near Joo Koon MRT)

Tel: (65) 6747 8884  Fax: (65) 6748 9979

Email: Mr Yichin at yichin@sigma-builders.com

Visit www.sigma-builders.com for more information.
SKILLED BUILDERS COMPETITION

SINGAPORE CONSTRUCTION PRODUCTIVITY WEEK 2014

14 - 15 OCTOBER 2014 | SINGAPORE EXPO HALL 3

Since the launch of the Skilled Builders Competition in 2011, this event has attracted many builders to participate in different productive trades to demonstrate the good practices and efficient construction methods. Moving forward, the competition this year will focus on the Prefabricated Bathroom Unit (PBU). Competitors from various trades will have to work together to demonstrate their ability in planning, coordinating and fitting out an actual PBU on the competition ground. Participants of this 1.5 days event will compete on their trade skills and project management knowledge to assemble a PBU.

The various trades involved for the competition include:
- Panel fitting out
- Plumbing and sanitary
- Architectural finishing

Each company can register up to 6 participants for the competition. There is no restriction to the number or type of trades each participant can specialise in. However, only 4 participants will be allowed to compete during each session at any one time. The team leader must decide on the team members before each session. No changing of team members is allowed during each session. Teams may choose to complete more than 1 task per session in any particular order. A briefing on the details of the competition will be conducted.

PRIZES
- All participants will be awarded a certificate of participation.
- All participants will be provided with safety helmet & competition T-shirt.
- Participants are to bring their own safety boots & other required PPE.
- Participants will be awarded up to $30 vouchers ($10 voucher per session) for participation.
- Winners of the PBU event will be awarded with a cash prize, certificate and trophy.

$5,000 winner
$3,000 runner up
$2,000 best productivity team

DATES

| Competition Day 1 (Session 1) | 14 Oct 2014 (9:00am - 1:00pm) |
| Competition Day 1 (Session 2) | 14 Oct 2014 (2:00pm - 6:00pm) |
| Competition Day 2 (Session 3) | 15 Oct 2014 (9:00am - 1:00pm) |
| Prize Giving Ceremony | 15 Oct 2014 (2:00pm - 2:30pm) |
| Workshop & Productivity Show & Tell | 15 Oct 2014 (2:45pm - 5:30pm) |

1 The time shown is tentative only. Actual time will be confirmed during the briefing / familiarisation session.
2 Participants to register for competition session / event two hour earlier.
3 Speaking slots are invited. Please contact Ms Ling On (singhong@sbc.com.sg) on the sponsorship details.

FOR MORE DETAILS & REGISTRATION

Please contact:
- Ms Lin Shui Man (lin_shui_man@bca.gov.sg | 6325 5056)
- Ms Tan Mui Kheng (tan_mui_kheng@bca.gov.sg | 6325 5067)

Registration closing date: 12 September 2014
Competition briefing: 17 September 2014
(S compulsory for Company Representatives & Team Leaders)
Skill familiarisation: 24 September 2014 (For any Participants Requiring Hands On)
Dedicated to make a difference to the future of this industry, the 4th edition of BuildTech Asia focuses on technologies and innovations addressing the challenges of building and construction in different vertical industries.

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Pre-register at www.buildtechasia.com

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CONSTRUCTION PRODUCTIVITY AND CAPABILITY FUND (CPCF)

TECHNOLOGY ADOPTION

BUILDING INFORMATION MODELLING (BIM) FUND
 Provides assistance to companies to defray up to 50% of the cost of incorporating BIM into their work processes. The assistance is capped at $20,000 for firm level scheme and $35,000 for project collaboration scheme per application.* Each company can submit up to a total of 6 applications.

MECHANISATION CREDIT (MECHC) SCHEME
 Provides assistance to companies to defray up to 70% of equipment cost.*

PRODUCTIVITY IMPROVEMENT PROJECT (PIP) SCHEME
 Provides assistance to companies to defray up to 70% of the cost for adopting more productive work processes.*

*Bterms and conditions apply.

For more information, please call the CPCF toll-free hotline at 1800-325 5050 or visit http://www.bca.gov.sg/CPCF/cpcf.html