RAISED: MINIMUM BUILDABLE DESIGN AND CONSTRUCTABILITY SCORES

NEW INTEGRATED CONSTRUCTION AND PRECAST HUB TO BOOST PRODUCTION

BIM HAPPENINGS AT SCPW 2013

HIGHLIGHTS FROM SCPW
Dear readers,

We recently concluded the third Singapore Construction Productivity Week (SCPW) 2013 with great success. It was an eventful week, where we saw a line-up of exciting activities including an inaugural government symposium on Building Information Modelling (BIM) and the launch of a new Integrated Construction and Precast Hub (ICPH). In this issue of Build Smart, we share with you some highlights from SCPW 2013.

This year’s SCPW focused greatly on BIM. We convened the second International Panel of Experts (IPE) on BIM to help assess and review the various strategies that BCA have put in place to drive BIM adoption in Singapore. We also held the third edition of the BIM 48-hour Competition and an inaugural BIM Mobile App Challenge. These competitions saw innovative ideas from tertiary students and industry professionals on how stakeholders can collaborate more effectively from design to construction on site, using BIM mobile apps.

Indeed, the collaboration among stakeholders is crucial in ensuring that a project is completed efficiently. A few months ago, we announced that we will be raising the minimum Buildable Design and Constructability scores for all new developments. This new requirement, which will take effect from 1 September this year, is aimed at improving construction productivity by encouraging better upstream planning and the adoption of more buildable design and constructable methods.

The use of precast and prefabricated components will continue to be a way to improve productivity on site. To meet the increasing demand for precast and prefabricated components, BCA will be pushing out more land tenders for ICPHs to build up capabilities and capacity in this area. When such production activities are moved away from the construction site, there will be fewer workers needed on site and less dust and noise.

There is no one method that fits all building projects. Hence, developers, engineers, architects and builders each have a key role to play in driving and tailoring suitable buildable designs and construction methods to deliver the best quality project within the shortest possible time. We have plenty to learn from one another. I would like to urge all to continue to tap into BCA’s ongoing conferences and seminars to learn from the good examples within the industry.

Dr John Keung
Chief Executive Officer
The aim of the new scores is to further spearhead construction productivity.

To accelerate the adoption of more buildable designs and productive construction methods, the Building and Construction Authority (BCA) will raise the minimum buildable design and constructability requirements by three points each for all new projects from 1 September 2013.

In addition, higher minimum buildable design and constructability scores will be imposed on private developments on land sold under the Government Land Sales Programme (GLS) from 15 October 2013.

These measures are aimed at getting developers, architects, engineers and builders to work in an integrated manner from the start of the project to ensure better upstream planning, infuse more buildable designs and adopt more constructable methods. The aim is also for projects to be delivered using lesser manpower.

With the higher buildable design requirements, architects and engineers have to consider the productivity requirement early and ensure that building designs are easy to construct. This means that building designs will have to adopt more standardisation, modular design, prefabrication and dry construction methods to allow for greater ease of construction.

On the other hand, builders downstream have to adopt labour-saving construction methods and technologies, as well as simplify their work processes to meet the higher constructability requirements.

With public sector projects forming a substantial part of the construction demand, public agencies will lead in adopting buildable designs and productive construction technologies. With effect from 1 September 2013, all new public sector projects are required to meet five and two additional buildable design and constructability points respectively above the new minimum requirements. In addition, projects by certain public agencies are required to achieve even higher buildable design and constructability scores.

To accelerate the built environment sector’s productivity improvement, BCA will further raise the minimum buildable design and constructability scores next year.

**Increase in Buildable Design and Constructability Points**

The charts below show the increase in minimum buildable design and constructability scores for all types of projects.

**Raising of minimum Buildable Design Scores from 1 September 2013**

- All projects: +3 points
- Projects by Public Agencies and GLS: +5 points

**Raising of minimum Constructability Scores from 1 September 2013**

- All projects: +3 points
- Projects by Public Agencies and GLS: +2 points

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FOR A QUANTUM LEAP IN PRODUCTIVITY, THINK DESIGN FOR MANUFACTURING AND ASSEMBLY

During a trip to the U.K., delegates learnt how designing buildings for manufacturing and assembly can radically change the way we build in Singapore

To London, they went. In July 2013, representatives from 24 public and private organisations visited various British companies and government organisations to witness new technologies at work.

This is the first overseas learning trip for the industry led by the inter-ministry Construction Productivity Steering Committee (CPSC), which is chaired by Mr Lee Yi Shyan, Senior Minister of State (SMS), Ministry of Trade and Industry and Ministry of National Development.

CPSC, formed this year, will review, simplify and streamline government policies that may adversely impact productivity in the built environment sector. CPSC will also propose new measures to help the industry improve productivity.

During the trip, delegates were exposed to new methods in pre-assembled structural steel and Pre-fabricated, Pre-finished Volumetric Construction (PPVC), as well as technologies such as Cross Laminated Timber (CLT).

These advanced building systems are part of the Design for Manufacturing and Assembly school of thought, which is changing design and construction mindsets in the U.K. and pushing firms to hit new levels of productivity.

Many of the delegates are keen to explore the feasibility of applying the technologies in Singapore.

Mr Pek Lian Guan, Managing Director of Tiong Seng Contractors Pte Ltd, said, “Technologies like CLT, structural steel construction and modular construction have their merits and strengths in different applications. We will have to study, understand and address the challenges on adapting them for Singapore."

Local construction company Swee Hong Limited is also optimistic about these newer forms of construction. It is in the midst of setting up a factory for volumetric manufacturing.

But the way forward for these technologies to bring about a quantum leap in construction productivity is when all parties in the construction value chain do their part and invest in a productivity culture.

Mr Allen Ang, Deputy General Manager, Projects & Head of Green Building, City Developments Limited, said, “The government can take the lead by ensuring that development processes are integrated and to build capabilities in terms of skills and facilities for such technologies to mature here. Developers, being the paymaster, also have an influence at the top of the value chain. Meanwhile, consumers or end-users must continue to be updated on new products, processes and materials in the market.”

Dr John Keung, CEO of the Building and Construction Authority, led an earlier learning trip to Australia in June. The delegation of 26 also learnt about various productive technologies, including the use of CLT and PPVC.

• Cross Laminated Timber (CLT) is manufactured by bonding layers of timber at right angles to produce solid timber panels that can be used as structural components in buildings.

With the use of CLT, the eight-storey Stadthaus at Murray Grove in London required nine weeks to construct, approximately 35% faster compared to conventional concrete construction. Also, it only required four skilled workers and one supervisor on site, compared to about 22 workers if the structure was constructed using reinforced concrete.

• Pre-fabricated, Pre-finished Volumetric Construction (PPVC) involves the building of flats or modules in factories, which are then transported to the site for installation. The modules are made of multiple units complete with internal finishes, fixtures and fittings.

This method helped reduce the construction time of the 10-storey YMCA building at South London by 21 weeks. Also, the British Petroleum’s international headquarters in Sunbury on Thames was built at one-third the price and three times faster compared to a building constructed traditionally. All 99 modules were installed and the building was made watertight in just 10 days during the 14-week construction period on site.
NEW INTEGRATED CONSTRUCTION AND PRECAST HUB TO BOOST PRODUCTION

It will feature state-of-the-art technologies and environmentally friendly practices

Construction of a new Integrated Construction and Precast Hub (ICPH) by SEF Group Ltd is now under way after the Building and Construction Authority (BCA) awarded the first public tender for the project to the Group.

Named SEF S.P.A.C.E. Hub, the ICPH will be equipped with state-of-the-art technologies including highly automated production lines. This promises an annual production of high quality precast components.

The ICPH will also produce more than 25 types of components – both structural and architectural as well as prefinished and preassembled products – for use in public and private sectors projects.

SEF’s ICPH will be the first in Singapore to make use of a system capable of storing more than 100 trailers worth of completed components. In addition, SEF will integrate Construction Information Modelling (BIM) software with control and management features to gather updates from project sites and achieve “Just-in-Time” production to cut down on storage space.

Dr John Keung, CEO of BCA, said, “With our productivity drive towards off-site production, mechanisation and standardisation, the demand for precast components will increase significantly. The concept of the Integrated Construction and Precast Hub is suitable for Singapore as it allows us to intensify land use while ensuring production of high quality precast components.”

The adoption of environmentally friendly practices is also a key focus of the integrated hub. Water will be recycled into industrial water for production use and a high-efficiency, low-energy heater will be installed to reduce energy consumption by up to 50%. The 32,608 m² five-storey building will also be used for offices and dormitories.

“The ICPH gives us a platform in which we can integrate all technologies from design to production and delivery into seamless processes. This intensified development has sophisticated production lines to achieve large productivity gains,” said Ms Eileen Ng, Managing Director of SEF.

The ICPH is set to begin production next year.

Following the launch of SEF’s ICPH, BCA is now inviting tenders for the development of a second ICPH. Interested parties can refer to http://www.bca.gov.sg/buildabledesign/tender_precast_hub.html for more information on this tender.

Who Should Sign Up for BCCPE

• New Contractors Registration System (CRS) contractors who want to register under the work head CW, CR, ME, MW02, MW03, TR, SY04 and SY08 with grades B2 to C3, L5 to L1 and Single Grades are required to attend the course.

• Companies can also choose to send their directors to attend the course. There is no need for any qualification verification, however, companies must be registered under ACRA and directors must fulfil the course requirements.

Small firms can benefit from the Basic Concept in Construction Productivity Enhancement (BCCPE) seminar, as BCA will guide them on its fund offerings and other types of support

Small companies are set to be empowered with the new Basic Concept in Construction Productivity Enhancement (BCCPE) course launched by the Building and Construction Authority (BCA) and the BCA Academy.

The half-day course, conducted by experienced professionals from BCA, focuses on offering guidance, information and tips on accelerating productivity. Topics include measuring site productivity, best practices in site management and quality control for building works. The course also aims to demystify concepts such as Buildability and Constructability.

Mr Arthur Foo, Manager at Kee Link Design & Build, said, “The highlight of the seminar for me was the introduction of equipment with information on their productivity data. This allows us to determine which equipment to invest in. Equipment suppliers were also invited to showcase their products so that the participants can see how they work.”

BCCPE has been well-received by participants because it keeps the industry in touch with BCA’s latest offerings. During the course, companies will be urged to tap into the Construction Productivity and Capability Fund (CPCF) to build capability, adopt technology and upgrade their workforce.

Mr Loh Ting Peng, Operations Manager at Ultracon Corporation.
HIGHLIGHTS FROM SCPW

Missed out on the industry’s biggest productivity event of the year? Fret not. We go back in time and take you through its best moments!

Singapore Construction Productivity Week (SCPW), which took place from 29 July to 2 August 2013, was packed with exciting activities. Here are snapshots from some of the key events!

01 LOOKING AT THE FUTURE
Senior Minister of State Lee Yi Shyan (left) examining lightweight precast concrete samples at the launch of the SEF Group Ltd’s Integrated Construction and Precast Hub (ICPH).

02 FUN WITH BIM
The third Building Information Modelling (BIM) Competition this year saw 37 teams participating in various categories.

03 THE WAY FORWARD: NEW TECHNOLOGIES, BETTER CAPABILITIES
At the opening of the third Singapore Construction Productivity Week, Deputy Prime Minister (DPM) Tharman Shanmugaratnam urged the built environment sector to adopt new technologies such as BIM and Pre-fabricated, Pre-finished Volumetric Construction. He also spoke about enhancing capabilities for the sector to progress to a new level.

04 REACHING FOR THE SKIES WITH CLOUD-BASED TECHNOLOGY
A Memorandum of Understanding (MOU) was signed between the Singapore Institute of Architects and members of the Construction Industry Joint Committee to collaborate on developing an online, cloud-based BIM design object library.

05 BCA AND PA COLLABORATE TO EXPAND BIM ADOPTION
The Building and Construction Authority (BCA) and the People’s Association (PA) also signed an MOU to collaborate on a joint programme offering students from the BCA Academy an opportunity to undertake projects for PA’s Community Clubs, in which paper-based building plans are converted into BIM format.

06 HIGH-TECH SHOWCASES
DPM Tharman Shanmugaratnam touring the booths at BuildTechAsia2013. The exhibition was held at Singapore Expo and technologies such as 3D printing were on display.

07 PRIZED SKILLS
DPM Tharman Shanmugaratnam chatting with one of the participants of the Skilled Builders Competition. The competition was organised by BCA, the Singapore Contractors Association Limited (SCAL) and the Specialist Trade Association of Singapore (STAS).

08 BUILDING SMART
During the two-day Build Smart Conference, participants gleaned insights on innovative construction technologies and projects that have successfully adopted productive methods of construction.

09 REVIEWING BIM ADOPTION IN SINGAPORE
At the International Panel of Experts (IPE) meeting on BIM, the panel commended Singapore for its excellence in driving BIM transformation and adoption through public and private sector partnership.

10 MEETING THE CHALLENGES OF BIM
BCA organised the inaugural Government BIM symposium, which was attended by government representatives from over 10 countries. The representatives shared their experiences and challenges in the adoption of BIM such as the need for BIM-related training, as well as the uptake of full lifecycle BIM solutions.

11 ON YOUR MARK, GET SET, GO!
Approximately 80 students from Singapore Polytechnic and the National University of Singapore took to the streets for the inaugural BCA Productivity Race to learn more about construction technologies.
BIM HAPPENINGS AT SCPW 2013

An exciting line-up of BIM activities took place during the Singapore Construction Productivity Week

A key focus at Singapore Construction Productivity Week (SCPW) 2013 was Building Information Modelling (BIM) technology. Industry leaders, professionals, government delegates and practitioners participated in an exciting line-up of BIM activities ranging from panel discussions to competitions. They also deliberated on ways to enable a greater transformation of the built industry through BIM. Here is a recap of the BIM happenings during SCPW 2013.

International Panel of Experts Meeting on BIM 2013

The second International Panel of Experts Meeting on BIM (IPE-BIM) convened in Singapore from 30 July to 1 August 2013. IPE members exchanged views on the efforts made by the Building and Construction Authority (BCA) under the first BIM Roadmap. The panel also assessed the various new strategies and initiatives drawn up in the revised BIM Roadmap.

The IPE commended Singapore for being one of the leading countries in driving BIM transformation and adoption through public and private sector partnership. BIM adoption rate here has gone up from 20% in 2009 to 65% today.

To build on this success, recommendations offered by the IPE include broadening the scope of BIM adoption specifically in the areas of lifecycle benefits and transforming construction procurement processes through greater collaborations.

THE IPE’S RECOMMENDATIONS

01 Bring about real process transformation with the help of BIM. This allows the industry to break away from inefficiencies found in current processes and practices.

02 Spearhead BIM Research & Development through two new Centres of Excellence at the National University of Singapore and National Technological University to serve the industry needs beyond the immediate horizon and to support major Government Procurement Entities (GPEs) in their BIM adoption journey.

03 Engage building owners and operators on BIM for Facility & Asset Management to realise the lifecycle benefits of BIM for the operations and maintenance of completed facilities.

04 Further push the public sector to take the lead. Public sector agencies must continue to lead the way in the use of BIM for new and existing buildings and infrastructure.

05 Leverage on the BIM leadership role of Singapore to push for greater international collaborations on BIM projects and the harmonisation of BIM standards across government agencies.

BIM Visionary Leadership Workshop 2013

BCA also held the inaugural Government BIM Symposium 2013. Government representatives from over 10 countries joined in to discuss their experiences in BIM adoption.

While each country is at a different stage of adopting BIM, common challenges were identified such as the need for BIM-related training, as well as the uptake of full lifecycle BIM solutions.

The IPE recommended that Singapore should continue to facilitate international collaboration and exchange on BIM planning and deployment at the governmental level.

We thank the members of the IPE for sharing their insights on how we can further drive the BIM transformation process in Singapore. Their recommendations would serve as critical inputs to the formulation of BCA’s second BIM Roadmap. Moving ahead, we will bring the usage of BIM to a higher level, to maximise the benefits of BIM in the built environment.

– Dr John Keung, Co-Chair of IPE-BIM and CEO of BCA

– Professor Stephen Lockley, IPE member

The construction industry is moving towards a re-engineering of its processes to be leaner and more efficient. BCA is playing a lead role in this process transformation. Singapore stands out in its leadership compared to countries in Europe and possibly the rest of the world. While the first BIM roadmap in Singapore focused on getting people to start using BIM, the next stage is to broaden its application of BIM, especially in the areas of management and operation of existing buildings and other assets.

– Dr John Keung, Co-Chair of IPE-BIM and CEO of BCA

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BIM Competition and Mobile Apps Challenge 2013

The 48-hour BIM Competition saw various groups strategising over BIM models, designs and calculations. A total of 37 teams completed the challenge, with eight of them participating from overseas.

Meanwhile, the inaugural BIM Mobile Apps Challenge 2013 gathered innovative ideas on mobile applications to help architects, engineers, contractors, quantity surveyors and building owners collaborate on and harness the benefits of BIM. Eight teams took part and six of them went on to develop their ideas into prototypes.

Congratulations to all the winning teams!

Go to http://sgbimcompetition.com to view the BIM winning entries.

WINNING TEAMS OF THE 48-HOUR BIM COMPETITION 2013:

<table>
<thead>
<tr>
<th>INDUSTRY – ARCHITECTURE CATEGORY</th>
<th>TEAM</th>
<th>TEAM MEMBERS</th>
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<tbody>
<tr>
<td>1st WATG</td>
<td>WATG Singapore Inc.</td>
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<tr>
<td>2nd RSP</td>
<td>RSP Architect Planners &amp; Engineers (Pte) Ltd</td>
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<td>3rd J-Force</td>
<td>RDC Architects Pte Ltd</td>
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<tr>
<th>INDUSTRY – MULTIDISCIPLINARY COLLABORATION CATEGORY</th>
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<th>TEAM MEMBERS</th>
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<tr>
<td>1st Heerim and Associates</td>
<td>Heerim Architects and Planners Co., Ltd • Heerim Sustainable Design and Research Group • Heerim BIM Design Research Group • Smart Geometry BIM • Heerim Digital Design Research Group • Heerim BIM CM Group • SUGA design group • Yunwoo Technologies • NOW Consulting Engineers</td>
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<tr>
<td>2nd Sequoia</td>
<td>Arup Singapore Pte Ltd • Aedas Pte Ltd • Langdon &amp; Seah Singapore Pte Ltd</td>
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<tr>
<td>3rd Team V</td>
<td>Architects 61 Pte Ltd • Arup Singapore Pte Ltd • Meinhardt (Singapore) Pte Ltd • Langdon &amp; Seah Singapore Pte Ltd</td>
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WINNING TEAMS OF BIM MOBILE APPS CHALLENGE 2013:

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<tr>
<th>TEAM</th>
<th>TEAM MEMBERS</th>
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<tr>
<td>1st WH- INNO-BIM 1</td>
<td>Woh Hup (Pte) Ltd</td>
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<td>2nd 360 Jambo</td>
<td>ONG&amp;ONG Pte Ltd</td>
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<tr>
<td>3rd Scarlett</td>
<td>BCA Academy</td>
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</table>
THE FUTURE OF BUILDING SMART

This year’s Build Smart Conference focused on productive technologies and BIM

The third edition of Build Smart Conference 2013 organised by the Building and Construction Authority (BCA) was held from 31 July to 1 August 2013 at Max Aria, Singapore Expo.

Close to 600 delegates attended the two-day conference, which brought together industry practitioners and academics from around the world.

This year’s conference covered two themes. Day One was on Productive Technologies and Processes. Local and international speakers shared their experiences and success stories on applying construction management practices and concepts such as the theory of time constraint. They also discussed construction technologies like Cross Laminated Timber and precast construction without “joints”.

Day Two of the conference focused on Building Information Modelling (BIM), beginning with an opening address by Mr Quek See Tiat, Chairman, BCA. He emphasised the importance of the technology as a game-changing solution for Singapore’s building industry to achieve stronger integration among various stakeholders, which would lead to significant improvements in construction productivity.

International experts then gave an overview on the exciting developments and trends in BIM that are taking place globally. These include the use of BIM to optimise the prefabrication process across various stakeholders and the implementation of management tools and scientific evaluation to enhance BIM performance. Local practitioners presented their experiences of using BIM for landmark projects.

With over 20 presentations over two days, the delegates gained useful insights on new construction technologies. The success stories also encouraged them to embark on BIM and to taste the benefits of this technology for themselves.

Funds for Companies to Train PMETs in BIM

The courses, which include BIM modelling, management and planning, are offered at the BCA Academy

Building Information modelling (BIM) has become one of the most exciting developments in the built environment sector in Singapore.

As an integrated design and documentation tool used to enhance communication and collaboration among all project stakeholders, BIM has changed the way architects, engineers, contractors and building owners work together. BIM significantly improves the design and construction process through better-integrated project coordination.

To encourage the upgrading of professional managerial executive and technical personnel (PMET) in BIM knowledge, the Workforce Training and Upgrading (WTU) scheme under the $250 million Construction Productivity and Capability Fund (CPCF) can help companies in the built environment sector defray the cost of BIM training and upgrading.

To date, the WTU funding scheme has benefited close to 1,000 PMETs, who have received funding to take up various tenable BIM courses at the BCA Academy.

For more details on the WTU scheme, please visit [http://www.bca.gov.sg/Workforce/wtu.html](http://www.bca.gov.sg/Workforce/wtu.html). Information on BIM courses at the BCA Academy can be found at [http://www.bcaa.edu.sg/](http://www.bcaa.edu.sg/). For clarity, contact Ms Cherlyn Lee (tel: 6325 5034) or Ms Sharon Tan (tel: 6325 2096 or email: bca_wtu@bca.gov.sg).

For more details on the BIM Fund under the CPCF available to help firms adopt the technology into their work processes and improve their productivity, please visit [http://www.bca.gov.sg/BIM/bimfund.html](http://www.bca.gov.sg/BIM/bimfund.html).

Qualifying Criteria

The enhancements to the funding level for PMET courses took effect from April 2013. To qualify for the enhanced funding, participants will have to satisfy the criteria stated below. Locals who fail to meet the enhanced funding criteria will still enjoy the standard 50% funding level, while foreigners who fail to meet the enhanced funding criteria will not be eligible for any funding.

<table>
<thead>
<tr>
<th>List of Qualifying Criteria</th>
<th>Standard Funding Level (Locals only)</th>
<th>Enhanced Funding Level (Locals)</th>
<th>Enhanced Funding Level (Foreigners)</th>
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<tbody>
<tr>
<td>1. Possess at least 2 years of construction experience in Singapore</td>
<td>Up to 50%</td>
<td>Up to 70%</td>
<td>Up to 40%</td>
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<td>2. Achieve at least 75% attendance rate</td>
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<td>3. Pass the assessments</td>
<td>✓</td>
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<tr>
<td>4. Submit project report 3 months after course completion</td>
<td>N.A.</td>
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<tr>
<td>5. Remain in the firm for at least 3 months</td>
<td>N.A.</td>
<td>✓</td>
<td>✓</td>
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</table>

For clarification or assistance on the enhanced WTU scheme, contact Ms Cherlyn Lee (tel: 6325 5034) or Ms Sharon Tan (tel: 6325 2096 or email: bca_wtu@bca.gov.sg).

There is also the BIM Fund under the CPCF available to help firms adopt the technology into their work processes and improve their productivity. The BIM Fund defrays part of the cost incurred in training, consultancy, software or hardware. For more information, please refer to [http://www.bca.gov.sg/BIM/bimfund.html](http://www.bca.gov.sg/BIM/bimfund.html).
## CALENDAR OF EVENTS

### Key Events

<table>
<thead>
<tr>
<th>DATE/TIME</th>
<th>EVENT NAME</th>
<th>VENUE/ORGANISER</th>
<th>CONTACT PERSON &amp; DETAILS</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 Sep &amp; 7 Nov 2.30pm – 5.00pm</td>
<td>Smart Builders Leadership Series</td>
<td>9 Maxwell Road, MND Auditorium BCA</td>
<td>Ms Ezrin Raof Tel: 6325 5093 Email: <a href="mailto:ezrin_raof@bca.gov.sg">ezrin_raof@bca.gov.sg</a></td>
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### Training

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<tr>
<th>DATE/TIME</th>
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<tbody>
<tr>
<td>18 &amp; 19 Sep 9.00am – 5.00pm</td>
<td>2-Day BIM Planning Course (Building Developers and Facility Managers) (7th Run)</td>
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<tr>
<td>30 Sep &amp; 1 Oct 9.00am – 5.00pm</td>
<td>Workshop on Managing Project Teams Effectively (5th Run)</td>
<td>BCA Academy 200 Braddell Road Singapore 579700 BCA Academy</td>
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<tr>
<td>1 Oct – 20 Nov 6.30pm – 9.30pm (12 evenings)</td>
<td>Project Management for Professionals in the Building &amp; Construction Industry (8th Run)</td>
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<tr>
<td>22 Oct – 12 Dec 6.30pm – 9.30pm (13 evenings)</td>
<td>Design of Precast Concrete Structures for Engineers (5th Run)</td>
<td>BCA Academy 200 Braddell Road Singapore 579700 BCA Academy</td>
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<tr>
<td>25, 28 Nov &amp; 2 Dec 6.30pm – 9.30pm (3 evenings)</td>
<td>Workshop on Site Management of Precast Concrete (12th Run)</td>
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<tr>
<td>29 Nov 2.00pm – 5.30pm</td>
<td>Half-Day Course on Basic Concept in Construction Productivity Enhancement (8th Run)</td>
<td>BCA Academy 200 Braddell Road Singapore 579700 &amp; Visit to a Green and Gracious Builder Scheme (GGBS) Site BCA Academy</td>
<td></td>
</tr>
<tr>
<td>2 Dec 8.30am – 1.00pm</td>
<td>Half-Day Course on Best Practices for Green and Gracious Builder (2nd Run)</td>
<td>BCA Academy 200 Braddell Road Singapore 579700 &amp; Visit to a Green and Gracious Builder Scheme (GGBS) Site BCA Academy</td>
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<tr>
<td>6 Dec 9.00am – 12.30pm</td>
<td>Code of Practice on Buildable Design (Re-run)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Jan – 20 Feb 2014 6.30pm – 9.30pm (12 evenings)</td>
<td>Certificate in Construction Productivity Management (12th Run)</td>
<td>BCA Academy 200 Braddell Road Singapore 579700 BCA Academy</td>
<td>Marketing &amp; Business Development Unit Tel: 62489843 / 824 Email: <a href="mailto:bca_academy@bca.gov.sg">bca_academy@bca.gov.sg</a></td>
</tr>
<tr>
<td>Term for part-time mode will start in Feb 2014</td>
<td>Bachelor of Construction Management (Building) (Awarded by The University of Newcastle, Australia) (Registration closes on 11 Oct 2013)</td>
<td>BCA Academy</td>
<td></td>
</tr>
</tbody>
</table>

### Productivity Clinics

<table>
<thead>
<tr>
<th>DATE/TIME</th>
<th>EVENT NAME</th>
<th>VENUE/ORGANISER</th>
<th>CONTACT PERSON &amp; DETAILS</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Oct &amp; 1 Nov 9.00am –12.00pm</td>
<td>BCA Productivity Clinic</td>
<td>5 Maxwell Road, #12-02, MND Complex, Tower Block, Singapore 069110 BCA</td>
<td>Ms Ezrin Raof Tel: 6325 5093 Email: <a href="mailto:ezrin_raof@bca.gov.sg">ezrin_raof@bca.gov.sg</a></td>
</tr>
<tr>
<td>13 Sep, 11 &amp; 25 Oct, 8 &amp; 22 Nov, 13 &amp; 27 Dec 2.00pm – 5.00pm</td>
<td>BCA – SCAL Productivity Clinic</td>
<td>Construction House, 1 Bukit Merah Lane 2, Singapore 199760 BCA and SCAL</td>
<td>Mr Loke Mun Tat Tel: 645-62789577 Email: <a href="mailto:munat@scal.com.sg">munat@scal.com.sg</a></td>
</tr>
<tr>
<td>20 Sep, 18 Oct, 15 Nov, 20 Dec 2.00pm – 5.00pm</td>
<td>BCA – STAS Productivity Clinic</td>
<td>5 Maxwell Road, #12-02, MND Complex, Tower Block, Singapore 069110 BCA and STAS</td>
<td>Mr Sam Tan Tel: 985 55767 Email: <a href="mailto:samtan@stas.com.sg">samtan@stas.com.sg</a></td>
</tr>
</tbody>
</table>

### CONSTRUCTION PRODUCTIVITY AND CAPABILITY FUND (CPCF) COURSES

- Certificate in Interior Finishing Coordination
- Certificate in Pavement Construction and Maintenance
- Certificate in Precast Concrete Construction Supervision
- Certificate in Waterproofing Supervision
- Certificate in Building Measurement
- Certificate in Geotechnical Instrumentation for Supervisors
- Certificate in Levelling and Setting Out
- Certificate Course for Structural Steel Supervisors
- NBQ in Project Supervision
- Higher NBQ in Project Supervision
- Advanced NBQ in Project Supervision
- NBQ in Supervision and Coordination of M&E Works
- Higher NBQ in Supervision and Coordination of M&E Works
- NBQ in Operation & Maintenance
- Higher NBQ in Operation & Maintenance
- Advanced NBQ in Operation & Maintenance

The additional courses are:

- Certificate courses (PMEs)
- Certificate course in BIM Modelling
- Certificate course in BIM Management
- Project Management for Professionals in the Building and Construction Industry (in collaboration with SPM)
- Construction Productivity Management (in collaboration with SCAL)
- Design of Precast Concrete Structures for Engineers
- Workshop on Site Management of Precast Concrete Construction

For Enquiries, please contact:

BCA Academy
Tel: 6248 9999
Email: bca_academy@bca.gov.sg
CONSTRUCTION PRODUCTIVITY AND CAPABILITY FUND (CPCF)

TECHNOLOGY ADOPTION

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.*

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.

*Terms 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