ROCKWOOL BLANKET FOR FIRE PROTECTION
NEW MECHC ONLINE PORTAL
GET WORKERS WITH THE RIGHT TRADE SKILLS TO DO THE JOB RIGHT

INSIGHTS ON CROSS LAMINATED TIMBER
Dear readers,

One of the key strategies in achieving a quantum leap in construction productivity is to change the way we build, by moving as much construction work off site as possible and through a wider adoption of prefabrication.

This is why, in the recent Budget Debate in Parliament, upstream measures were introduced to accelerate the adoption of prefabrication. For instance, the use of buildable designs such as standardised floor heights, precast building components and drywall will be mandated for new projects, to help contractors downstream and achieve better site productivity and quality standards.

The use of productive technologies such as Prefabricated Bathroom Units (PBUs) will be required for all new residential Government Land Sale (GLS) sites, while newer technologies like the Prefabricated Prefinished Volumetric Construction (PPVC) and Cross Laminated Timber (CLT) will be required for selected GLS sites.

Prefab construction will cut down the need for workers both on site and in factories as the production of components in factories is more streamlined and automated. Quality can also improve as the production of prefabricated components in factories is subjected to a much higher degree of quality control in a mechanised and controlled environment. Also, prefabrication leads to improved safety as fewer workers are needed to produce these components at construction sites and at height. Lastly, as most of the work is done off site in factories, there is much less impact on the neighbourhood as construction sites are cleaner, less noisy and dusty.

To drive the adoption of productive technologies, the entire construction eco-system needs to work together. Developers, being the key decision makers in construction projects, have to play a critical role to drive productivity improvement. This will help propel the entire industry forward while our consultants and contractors strive to adopt buildable design and productive technologies downstream.

Companies also need to take charge and continue upgrading and retaining workers. In this issue, we look at how DLE M&E Pte Ltd upgrades its workers through the CoreTrade scheme. Training and skills assessment have not only helped them save manpower costs through lower levies, but are key approaches in motivating and retaining good employees.

Our productivity journey is a long one but we are making some progress. We will continue to review and fine-tune productivity measures as we go and I certainly welcome feedback from industry stakeholders to see what more can be done together to transform our industry.

Dr John Keung
Chief Executive Officer

If you would like to share best practices and the latest technologies that could improve construction productivity, we would love to hear from you. Please email us at bca_enquiry@bca.gov.sg.

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ROCKWOOL BLANKET FOR FIRE PROTECTION

Easy dry installation and efficient use of manpower

Fire protection is essential for structural steel works. Traditionally, vermiculite sprays are used to coat steel structures for fire protection. Skilled workers are required for the application, as they need to handle a high pressure pipe for spraying. This is a wet method and the process tends to clutter the construction site. Thus, manpower needs to be deployed to protect other building elements during the spraying process and housekeeping is also essential after the work is done.

The rockwool blanket fire protection system is an alternative technique that involves dry installation. It reduces the need for workers on site and results in higher productivity compared to vermiculite sprays. The rockwool blankets are delivered in a ready-to-install condition. The installation is fairly simple as the blankets are wrapped onto steel members and fastened with a handy machine. One worker can cover 50 square metres of steel surface a day compared with 25 square metres using vermiculite sprays.

Another benefit of the the rockwool blanket method is easy removal. It does not stain the steel, making it easy to recycle the steel at the end of the building life. Also, as the rockwool blanket is made in the factory, it has a consistent thickness that gives the steel structures a uniform appearance. A general worker would be able to complete the job after hands-on training.

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10 prizes to give away

Take part in our Build Smart Readership Survey and help us serve you better!

SUBMIT YOUR FEEDBACK HERE:
http://tinyurl.com/nb23kej

CLOSING DATE:
30 April 2014
BIM technology is taking root here

About BIM Technology


Seventy-five per cent of construction companies from 10 countries reported a positive Return on Investment (ROI) on their BIM programme investment and fewer reworks and errors on site, leading to lower costs. The contractors also expect the percentage of their work involving BIM to increase by 50 per cent over the next two years.

BIM in Singapore

Based on the Building and Construction Authority (BCA) BIM fund applicants’ returns, companies in Singapore reported an average 30 per cent improvement in efficiency due to better visualisation, upfront conflict resolution, reduced errors and consistent documentation.

Mr Lim Tee Yoke, Tiong Seng Construction and Mr Edmund Leong, Straits Construction share their experience of how they implemented BIM technology and their future plans for BIM.

Q: About BIM Technology

A: What is the current stage of BIM usage in your organisation?

Mr Lim: BIM empowers us to “construct” in the virtual space before we carry out actual construction work in the real world. This helps us to detect discrepancies in design, missing details, clashes in services, and other issues that would impact our construction schedule if not resolved early. We also use BIM to take-off quantity, which has proven to be productive and more accurate.

Mr Leong: BIM helps us to surface “coordination issues” in our projects. We also use BIM for calculating overall quantities in projects and manage project progress quantities usage.

Q: What BIM training programmes has your company put in place?

Mr Lim: We have a BIM Centre within Tiong Seng to spearhead BIM development, and this includes providing customised training to gear our people for BIM capability. The training spectrum covers modellers, managers, engineers, QSs etc. At the same time, we also organise in-house forums to keep our people abreast of BIM development and new capabilities.

Mr Leong: We utilise BCA’s BIM Fund to support core skills development, especially for staff transitioning from conventional 2D-drafting to a BIM platform. The BCAA courses on Certificate in BIM Modelling and Certificate in BIM Management provide a good coverage of BIM tools and processes. Our in-house “cluster training course” enables staff to gain more specialised skills required in their job scope.

Q: In what ways are various BIM software used in your projects?

Mr Lim: For our HDB Punggol Waterfront project, we used BIM for early problem detection. We built a virtual space before actual construction, allowing for better coordinate drawings and visualisation. This facilitated discussions with the clients, design team and contractors and enhanced productivity.

Mr Leong: BIM software helps us to build the basic architectural and structural BIM models for a typical project in three weeks. With the added semantics in “height”, it helps to eliminate misrepresentation not always apparent in conventional 2D-drawings. With these models, effective coordination activities are done virtually. RFIs are then raised early in the project cycle for rectifications before actual construction works.

Q: What were some of the challenges you faced when your company first used BIM?

Mr Lim: We piloted BIM in 2010 when BIM was relatively new to the industry. We formulated our BIM capability roadmap, and started training our people to generate BIM models based on 2D drawings received from consultants. The learning curve in acquiring BIM was steep, but things got smoother over time because of strong support from management. Our belief in cultivating an inspiring BIM culture, and bringing everyone to observe how BIM is changing the way we work, also helps us steer our BIM journey at an organisation-wide level.

Mr Leong: It was difficult to get design consultants to provide BIM Models effective for our use. As a result, our team has to recreate the models for coordination activities. The learning process was marred by a lack of BIM-skilled resources, thus we created a training roadmap to groom our modellers in-house.

Q: What are the plans for BIM in your company in the next 3 to 5 years?

Mr Lim: Since 2011, after we decided to fully adopt BIM, it is now an integral part of our workflow. We are also actively working on integrating BIM into other aspects of the business flow, building on our acquired capability in 3D BIM generation. One such integration is to embed fourth (time) and fifth (costs) dimensions into our model. Our pilot studies yielded encouraging results and we are working towards empowering our BIM model to integrate 4D and 5D by 2015.

Mr Leong: We see a paradigm shift in using computer-aided tools. There will be greater utilisation of information generated from BIM models to support business operations, whether it is for project bidding or execution. The bulk of the current CAD-coordinators will transform to BIM-enabled resources. We will also use BIM to support field operations in future.
Register to enjoy the benefits

The Construction Productivity and Capability Fund (CPCF) was launched in 2010 as one of the key drivers to raise construction productivity. Firms can tap into the fund to defray the costs of adopting technology, re-engineering work processes and upgrading their workers.

In particular, the Mechanisation Credit (MechC) scheme under the CPCF funds construction firms, especially sub-contractors, for the purchase or leasing of machines and equipment to improve productivity.

To enable companies to apply and claim from the MechC Scheme easily, a MechC Online Portal was created to allow firms to apply for the Scheme online.

From 3 March 2014, BCA will no longer accept hardcopy applications for the MechC Scheme. Existing MechC applicants are encouraged to register for a MechC Online account, so they can continue to enjoy the benefits of the scheme. The flowchart shows how easy it is.

To assist the industry to ease into the next phase, BCA will also conduct MechC Online handholding sessions to guide companies through the registration process.

To register for your MechC Online account, please visit www.bca.gov.sg/mechc_online/

For more information, please contact:
Mr Gavin Khoo: 6325 5997 (DID) or email: gavin_khoo@bca.gov.sg
Ms Ezrin Raof 6325 5093 (DID) or email: ezrin_raof@bca.gov.sg

MechC Online: How to Register

1. Before applying for MechC, the required MechC Online accounts must be set up by the shareholder of the builder’s firm.
2. Only the Financial Controller or equivalent officer, as registered with ACRA or professional bodies may be nominated for a MechC Online account. He will also be required for claim submissions to be made.
3. There are no limits to the number of MechC Online staff accounts per company, it is recommended that each company nominates no more than four staff. Staff are required to log in with their SingPass.

Schedule of upcoming MechC handholding sessions

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Event Name</th>
<th>Venue / Organiser</th>
<th>Contact Person &amp; Details</th>
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</thead>
<tbody>
<tr>
<td>Every 2nd and 4th Wed (Mar to Jun)</td>
<td>BCA - SCAL MechC Online Handholding Sessions</td>
<td>Singapore Contractors Association Limited (SCAL) / SCAL</td>
<td>Name: Mr Loke Mun Tat Tel: 6278 5577 Email: <a href="mailto:muntat@scal.com.sg">muntat@scal.com.sg</a></td>
</tr>
<tr>
<td>24 Apr, 23 May and 18 Jun  15:00–17:00</td>
<td>BCA MechC Online Handholding Sessions</td>
<td>BCA Academy / BCA</td>
<td>Name: Ms Ezrin Raof Tel: 6325 5093 Email: <a href="mailto:Ezrin_raof@bca.gov.sg">Ezrin_raof@bca.gov.sg</a></td>
</tr>
</tbody>
</table>
We wish to place on record our deepest appreciation to Setsco Services Pte Ltd for training our welders for the BCA’s CoreTrade test. In particular, we would like to commend your trainer, Mr Madhavan for his dedication and for helping our supervisor, Mr Senthil Kumar to pass the trade foreman test at his first attempt.

– Dr Chandra Subramanian, Managing Director, EMATCO

Setsco Services is a BCA-Approved Training and Testing Centre (ATTC) for welding and it offers:

- Skills Evaluation Certificate (Knowledge) or SEC (K) for welding at 4G, 5G and 6G positions; and
- Skills assessment for experienced tradesmen and foremen at 3G, 4G, 5G and 6G positions, which leads to CoreTrade registration for welding.

Setsco was one of the 17 ATTCs that launched the Continuing Education Training (CET) to enable the CoreTrade personnel registered in welding to fulfil the requirements for renewal of their registration status. Training is conducted from Monday to Friday by two experienced welding inspectors. Training is conducted in English, Malay and Tamil.

Setsco ATTC is located at:
18 Teban Gardens Crescent (Near Jurong East MRT), Singapore 608925
Tel: +65 6566 7777 ext. 241
Fax: +65 6566 7718
www.setsco.com

Contact Persons:
Ms Rameswari
Email: rameswari@setsco.co Tel: 6895 0675
Ms Sarah Beevi
Email: sarahb@setsco.com Tel: 6895 0675

DID YOU KNOW?

BCA helps employers defray the cost of upgrading workers through the Workforce Training and Upgrading (WTU) scheme under the Construction Productivity and Capability Fund (CPCF). The WTU scheme co-funds the training and test fees of construction personnel leading to CoreTrade and Multi-skilling registration. To date, BCA has received more than 45,000 funding applications from over 3,500 companies under the WTU scheme.

Singapore Piling & Civil Engineering Pte Ltd

Singapore Piling ATTC offers 6 CoreTrade trades and 7 Multi-skilling trades – precast concrete component erection, aluminium formwork, painting, interior drywall installation, suspended ceiling installation (acoustical), suspended ceiling installation (fibrous plaster) and steel reinforcement work.

The ATTC has a pool of experienced trainers who are able to conduct training courses in English, Chinese and Bengali. To suit employers’ needs, training is conducted every day.

Contact Person:
Mr Sapumal
Mobile: 97898791
Email: training@singaporepiling.com.sg
www.attc.singaporepiling.com.sg

‘‘ Singapore Piling’s training courses, conducted on Sundays, suit our needs. The trainers have helped our workers to understand how they could raise their productivity on site.

– Ms Penny Sena, Smatra Engineering Pte Ltd

Build Smart looks at two BCA-appointed ATTCs Singapore Piling & Civil Engineering Pte Ltd and SETSCO Services Pte Ltd and the training and skills certification they offer.

PRODUCTIVITY

Register your workers for training and skills assessments at the BCA Academy or Approved Training and Testing Centres

Need to find ways to retain your skilled and experienced workers? You can do so by upgrading your workers to “higher skilled” workers, through the Building and Construction Authority’s (BCA) CoreTrade or Multi-skilling scheme. By doing so, you can enjoy levy savings and a longer allowable period of employment for your skilled and experienced construction personnel.

While the CoreTrade scheme caters to workers specialised in key construction trades, the Multi-skilling scheme provides an alternative pathway for the industry to upgrade workers who are competent in multiple construction trades. Better qualified workers with a minimum of four years of local construction experience and acceptable qualifications are allowed to apply for these schemes and qualify for the “higher skilled” category.

Workers who register for the CoreTrade or Multi-skilling scheme can undergo their training and skills assessments at the BCA Academy or any of the 28 Approved Training and Testing Centres (ATTCs) in Singapore.

Build Smart looks at two BCA-appointed ATTCs Singapore Piling & Civil Engineering Pte Ltd and SETSCO Services Pte Ltd and the training and skills certification they offer.

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– Dr Chandra Subramanian, Managing Director, EMATCO
Get Workers with the Right Trade Skills to Do the Job Right

Learn the importance of hiring workers with the right skills to do the job.

New foreign construction workers must pass the Skills Evaluation Certificate (Knowledge) or SEC(K) conducted at BCA-approved Overseas Testing Centres (OTCs) before they can work in Singapore under the construction work permit.

Construction companies can train and test their new workers in the relevant trade skills according to their manpower needs. Workers with the right trade skills can start work immediately in the trade that they have been trained in when they report for work in Singapore. The companies need not retrain these workers on site. This leads to cost and time savings while improving productivity and the quality of work.

Currently, BCA’s OTCs across seven countries (PRC, India, Bangladesh, Thailand, Myanmar, Sri Lanka and Philippines) offer training and test programmes for the 30 trades listed below.

Structure Class
- Aluminum Formwork
- Steel Reinforcement
- Timber Formwork

Building Equipment Operation
- Bored Piling Operation
- Driven Piling Operation
- Tower Crane Operation (Saddle Jib)

Architectural
- Tiling
- Glazing
- Timber Flooring
- Interior Drywall Installation
- Cladding Installation
- Joinery
- Curtain Wall Installation
- Door & Windows Installation (Timber)
- Door & Windows Installation (Aluminium)
- Suspended Ceiling Installation (Acoustical)
- Suspended Ceiling Installation (Fibrous Plaster)
- Bricklaying
- Plastering
- Waterproofing

Civil Engineering
- Structural Steel Fitting
- Welding
- Pipe Fitting
- Precast Kerb and Drain Laying

Mechanical & Electrical
- Ducting Installation for Aircon & Ventilation
- Electrical Wiring Installation
- Fire Sprinkler Installation
- Lift Installation
- Plumbing & Pipefitting
- Thermal Insulation (Pipework)


Workers with the right skills:

✔ Start work without retraining
✔ Save time and costs
✔ Achieve higher productivity, better quality

Employees with the right skills:
- Can start work immediately without retraining
- Save time and costs
- Achieve higher productivity, better quality

Oo! What are you doing?! I asked you to install the air conditioner!

But boss, how do I do that? I am only trained and tested in plastering...

Good work! You are super efficient!

Thank you, boss! This is what I was trained in!

Build Smart > February 2014

Productivity

Employees with the right skills:
- Can start work immediately without retraining
- Save time and costs
- Achieve higher productivity, better quality

Employees without the right skills:
- Need retraining
- Increase costs
- Decrease productivity, quality

Build Smart > February 2014

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Build Smart > February 2014
LEARN MORE ABOUT THE PRODUCTIVITY CLINIC

SMEs can get personalised one-on-one consultations on construction productivity issues

The Productivity Clinic was rolled out in December 2011 by the Building and Construction Authority (BCA) and Singapore Contractors Association Limited (SCAL) to guide and handhold the built environment sector, especially Small and Medium Enterprises (SMEs), to apply for the Construction Productivity and Capability Fund (CPCF).

Productivity Clinic participants can expect personalised consultation from dedicated BCA officers, who provide advice on assistance for manpower training, technology adoption and more.

Encouraged by the success of the BCA and SCAL partnership, BCA partnered Specialist Trade Alliances of Singapore (STAS) in December 2012, to offer a similar service to trade members. Together, BCA, SCAL and STAS have jointly conducted over 25 productivity clinics for almost 200 participants to date.

Build Smart interviews Mr Zeng Han Jun, Executive Manager of the Construction Productivity Centre (CPC), on frequently asked questions about the Productivity Clinic.

Q: Is the Productivity Clinic only open to companies registered with BCA's Contractors Registry?
A: No, it is open to any company dealing with building projects and interested to tap into the Construction Productivity and Capability Fund (CPCF). In fact, we have also tied up with Singapore Contractors Association Limited (SCAL) and Specialist Trade Alliances of Singapore (STAS) to conduct the Productivity Clinic for their members as well.

Q: How are the Productivity Clinic sessions organised? Is it like a seminar or briefing?
A: The Productivity Clinic sessions are one-to-one consultation sessions, which allow our BCA officers to attend to one company at a time. This setting gives companies more privacy and promotes more conducive discussions.

Q: Are the Productivity Clinic sessions only available to companies with a sizeable revenue?
A: The Productivity Clinic sessions are designed with Small and Medium Enterprises (SMEs) in mind. The objective is to provide consultations to SMEs, handholding them to tap into the Construction Productivity and Capability Fund (CPCF). There is a wide range of assistance schemes available from BCA and the sessions will enable SMEs to choose the right scheme for their needs.

Q: Do I have to pay for the Productivity Clinic sessions?
A: No, they are provided free-of-charge to companies in the built environment sector.

Q: Do you accept walk-in participants or do we need to call to make an appointment?
A: We accept walk-in participants but you are encouraged to make an appointment to avoid having to wait in the queue for an available slot.

Q: What do I need to prepare for a Productivity Clinic session?
A: It is best to prepare before you attend the Productivity Clinic session. Bring along the relevant documents and application forms so that the BCA officer can relate to your issue.

UPGRADING AND RETRAINING WORKERS

How DLE M&E Pte Ltd upgraded its workforce through CoreTrade

The Building and Construction Authority (BCA) actively looks into ways to raise the quality of the construction workforce. The Construction Registration of Tradesmen (CoreTrade) scheme, initiated by BCA, allows companies to send eligible workers for skills upgrading to enjoy lower levy and retain workers for a longer Period of Employment (POE) in Singapore. To help companies defray training costs, BCA co-funds up to 80 per cent of the training and test fees under the Workforce Training and Upgrading (WTU) scheme.

Manpower Development and Management
DLE M&E Pte Ltd (DLE) is an example of a company that has upgraded a substantial percentage of its workforce via the CoreTrade scheme.

One of DLE’s core values is to improve the capability of their workforce to deliver good quality and service to clients. DLE is in constant pursuit of employee development and regularly encourages its staff to upgrade themselves. One key upgrading pathway the company adopted is CoreTrade. Ms Sarah Tham, Associate Director at DLE, shared that CoreTrade has helped the company reduce manpower costs through the lower levies enjoyed by CoreTrade workers.

Motivating Employees for Success
In order to achieve a high passing rate in the skills assessment required under CoreTrade, DLE sets aside time for workers to revise training materials and arranges for site supervisors to conduct practical revision to prepare workers for the test. As a result, about 80 per cent of DLE’s workers passed the CoreTrade skills assessment at the first attempt. This is an achievement the company and workers are very proud of. To date, DLE has 57 registered CoreTrade workers who comprise a third of its construction site workforce. This is an impressive feat that other industry firms can learn from. Besides skills upgrading, DLE also acknowledges their workers’ performance with wage increments to retain good workers. Since 2010, DLE has set up an appraisal system to assess and reward good performing workers.

In addition to CoreTrade, DLE also sponsors suitable technical staff for diploma or degree courses. This strengthens the supervisory team’s knowledge and capability, serves as a form of recognition and helps retain staff with potential. DLE has participated in BCA’s Built Environment Diploma Scholarship/Sponsorship Programmes since 2011.

Mrs Sarah Tham
Associate Director, DLE

CoreTrade has enabled DLE to save on manpower costs. With the upcoming levy hikes, DLE would be able to save $3,600 in annual levy fees per worker by July 2015. This works out to over $150,000 savings on levy fees per year. DLE has also tapped into BCA’s WTU scheme, to co-fund up to 80 per cent of the workers’ training and test fees.

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**INSIGHTS ON CROSS LAMINATED TIMBER**

Learning about Cross Laminated Timber from overseas projects

Last year, 16 delegates from Nanyang Technological University, T.Y. Lin, Teambuild and Woh Hup embarked on an industry learning journey in Europe from 6 to 12 October.

The team went to Austria, Germany and UK to find out more about Cross Laminated Timber (CLT) construction, which is more productive than conventional construction methods.

They visited a range of CLT sites covering residential, healthcare, institutional and commercial projects. During the trip, the team also visited the Building Research Establishment (BRE), a former government establishment that carries out research, consultancy and testing for the built environment.

CLT has been used in countries outside of Europe, such as Australia, and CLT elements can be shipped all the way from Austria in 40-foot containers. The packing order is planned and sequenced to match unloading and installation sequence onsite.

Regarding concerns on fire safety, the delegates found that CLT chars at a slow, predictable rate of 0.7mm/min due to its thick cross structure. The use of fire boards is one way to increase the fire rating of the CLT elements.

**Advantages of CLT**

While the cost of adopting CLT is comparable or marginally higher than conventional construction, advantages of the CLT are numerous. As CLT is very light compared to steel and concrete, it is easier to handle. It also results in much quieter construction and cleaner, more conducive construction sites, as it is prefabricated in factories and assembled on site.

Using CLT increases productivity and can reduce the overall duration of construction by 30 to 35 per cent with fewer workers required on site. CLT recesses can also be pre-cut, resulting in easy installation of services.

Next month, BCA will start conducting workshops on CLT in April. The objective of these workshops are to raise awareness of the CLT system in Singapore and address the challenges of using CLT here. Renowned international experts will be sharing valuable insights on the benefits and challenges of using CLT, case studies of overseas CLT projects, as well as conducting workshops for participants who want to understand more about CLT design processes.

**William Perkin High School, UK**

The first phase of this project was completed in 18 weeks. Even though the cost of CLT was marginally higher than reinforced concrete, the construction time was reduced.

**Cree Life Cycle Tower One, Austria**

Completed in eight days, this 27-metre tower is the tallest timber building in Austria. Its hybrid timber construction system, which combines timber and concrete, makes it lighter than conventional reinforced concrete buildings.

**BMW Hotel, Austria**

Delegates spent a night at this five-storey hotel. The first two stories were completed in reinforced concrete, while the next three were completed using CLT. The modules were done off site.

**Dyson Centre for Neonatal Care**

Completed within three weeks, the maintenance of this single story building is no different from conventional buildings. According to a survey, the exposed timber walls help to reduce stress among staff and patients.
**CALENDAR OF EVENTS**

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Event Name</th>
<th>Venue / Organiser</th>
<th>Contact Person &amp; Details</th>
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<tr>
<td>26 Mar 2014 09:30-12:30</td>
<td>MEP BIM e-Submission Briefing</td>
<td>BCA Academy, Blk B, Level 3 IT Lab 3 / BCA</td>
<td>Mr Liu Ziwen  Tel: 6730 4527 Email: <a href="mailto:liu_ziwen@bca.gov.sg">liu_ziwen@bca.gov.sg</a></td>
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<td>Ms Mary Ann A Samaniego  Tel: 6730 4538 Email: <a href="mailto:mary_ann_samaniego@bca.gov.sg">mary_ann_samaniego@bca.gov.sg</a></td>
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<td>Structural BIM e-Submission Briefing</td>
<td>BCA Academy, Blk B, Level 3 IT Lab 3 / BCA</td>
<td>Mr Sonny Andalis  Tel: 6730 4439 Email: <a href="mailto:sonny_andalis@bca.gov.sg">sonny_andalis@bca.gov.sg</a></td>
</tr>
<tr>
<td>28 Mar 2014 11 Apr 2014 25 Apr 2014</td>
<td>BCA-SCAL Productivity Clinic</td>
<td>Singapore Contractors Association Limited (SCAL) / BCA and SCAL</td>
<td>Name: Mr Loke Mun Tat  Tel: 6278 9577 Email: <a href="mailto:munat@scal.com.sg">munat@scal.com.sg</a></td>
</tr>
<tr>
<td>22 Apr 2014 23 Apr 2014</td>
<td>Basic Concept in Construction Productivity Enhancement</td>
<td>BCA Academy / BCA</td>
<td>Tel: 6248 9999 Email: <a href="mailto:bca_academy@bca.gov.sg">bca_academy@bca.gov.sg</a></td>
</tr>
<tr>
<td>31 Mar 2014 8 May 2014 14:30-17:00</td>
<td>Smart Builders Leadership Series</td>
<td>MND Auditorium, 9 Maxwell Road, MND Complex Annex A, Singapore 069112 / BCA</td>
<td>Name: Ms Ezrin Roaf  Tel: 6325 5093 Email: <a href="mailto:ezrin_roaf@bca.gov.sg">ezrin_roaf@bca.gov.sg</a></td>
</tr>
<tr>
<td>31 Mar-3 Apr 2014</td>
<td>Code of Practice in Buildable Design (2nd run) 4-Day Certification Course in BIM Modelling (Structure Track) (1st Run)</td>
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<tr>
<td>4 Apr 2014 09:00-12:30</td>
<td>Code of Practice in Buildable Design (2nd run)</td>
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<tr>
<td>7–10 Apr 2014 09:00-18:00</td>
<td>4-Day Certification Course in BIM Management (27th Run)</td>
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<tr>
<td>8 Apr–17 May 2014</td>
<td>Design of Precast Concrete Structures for Engineers (6th Run) 2-Day BIM Planning Course (Building Developers and Facility Managers) (9th Run)</td>
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<tr>
<td>10 Apr 2014 09:00-17:00</td>
<td>Green and Gracious Construction Practices for Builders Seminar 2014</td>
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<tr>
<td>14–15 Apr 2014 09:00-17:00</td>
<td>2-Day BIM Planning Course (Building Developers and Facility Managers) (9th Run)</td>
<td>BCA Academy, 200 Braddell Road, Singapore 579700 / BCA Academy</td>
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<tr>
<td>22 Apr–6 Jun 2014</td>
<td>Certificate in Construction Productivity Management (14th Run) 2-Day Certification Course in BIM Modelling (Structure Track) (1st Run)</td>
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<tr>
<td>29 Apr 2014 09:00-17:30</td>
<td>Seminar on Innovations in Productive Building Systems: Cross Laminated Timber</td>
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<tr>
<td>Starts Sep 2014 22 Apr 2014 09:30-12:30</td>
<td>Masters of Science in Facility &amp; Environment Management [MSC(FEM)] , 2014 Intake</td>
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<tr>
<td>Starts Sep 2014 22 Apr 2014 09:30-12:30</td>
<td>Masters of Science in Sustainable Building Design [MSC(SBDG)] , 2014 Intake</td>
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</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

**THESE COURSES** BY SIGNING UP FOR CONSTRUCTION PRODUCTIVITY WAVE RIDE ON THE PRODUCTIVITY WAVE UP TO 50% TO 80% OF THE TRAINING COST CAN BE SUBSIDISED UNDER THE CPCF SCHEME.

The additional courses are:
- Certificate courses (PMEts)
- 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

**Trade Diplomas (Foremen / Supervisors)**
- Reinforced Concrete supervision
- Plumbing Technology
- Electrical Technology

**Certificate courses (Tradesmen / Foremen)**
- Building Cert in Plumbing and Pipelining
- SEC(K) in Structural Steel Fitting
- SEC(K) in Interior Drywall Installation

**FOR ENQUIRIES, PLEASE CONTACT:**

**BCA ACADEMY**

TEL: 6248 9999  EMAIL: bca_academy@bca.gov.sg
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 S$20,000 for firm level scheme and S$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