WINNERS OF THE CPA-ADVOCATES AWARD 2013
FASTER WAY OF DOING PILE LOAD TEST: THE STATRAPID
UPGRADE YOUR WORKERS, SAVE ON COSTS

A CONSTRUCTION PRODUCTIVITY MAGAZINE

BIM CHAMPIONS
Dear readers,

The journey towards higher construction productivity requires a concerted effort from everyone in the construction value chain. Developers, who are at the start of the chain, are in the best position to specify more productive construction methods in their requirements. At this year’s BCA Awards in May, a new award category under the Construction Productivity Award was introduced to recognise advocates that push for more productive construction methods. Among the winners were developers City Developments Limited (CDL) and Housing and Development Board (HDB), which received the top-tier Platinum awards.

A winning factor for CDL was its strong push for easier-to-install building components such as drywalls and prefabricated bathroom units, and for maintaining quality standards. As for HDB, besides its extensive use of precast technology, it stood out for the joint effort of its project parties to communicate design changes using tools such as BIM, which helped in reducing conflicts.

Indeed, communication is key to improving productivity on site. Apart from being able to help reduce abortive work, communication also enables project parties to tap one another’s experience to discover more productive building methods or processes. Woh Hup’s live communication mobile app is an innovation that emerged from the inaugural BIM Mobile Apps Challenge held during the recent Singapore Construction Productivity Week. It is able to link up project parties and allow them to retrieve or update information on precast components any time.

Manpower training is another area that firms will need to do more of. If workers are not trained to work more productively on site or handle equipment that helps them in their work, then our efforts in pushing for greater productivity are greatly hampered.

It is now more important than ever for firms to send their workers for upgrading because higher-skilled workers will help firms enjoy lower levies. Workers can be upgraded under BCA’s CoreTrade or Multi-skilling schemes with support from the Workforce Training and Upgrading (WTU) fund. Firms can apply for these schemes with the BCA Academy and/or the 28 BCA-Approved Training and Testing Centres around Singapore. I urge all firms in the built environment sector to invest in staff upgrading as a means to grow your business, as a higher skilled and experienced workforce will invariably contribute positively to your efforts to improve productivity and stay competitive.

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

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Dr John Keung
Chief Executive Officer
WINNERS OF THE CPA-ADVOCATES AWARD 2013

Check out the cutting-edge technologies and solutions that have put some of the winning companies at the forefront of the productivity movement

At this year’s Construction Productivity Awards (CPA), the Building and Construction Authority (BCA) introduced the CPA-Advocate category to recognise outstanding firms – developers, consultants, builders and subcontractors – that excel in their productivity journeys. Six companies emerged as the winners of this new category.

City Developments Limited (CDL) won the Platinum Award for their strong initiatives in influencing their consultants and builders to adopt safe and easy-to-build best practices that raise construction productivity. Their key initiatives include the use of prefabricated bathroom units (PBU), drywalls and Building Information Modelling (BIM).

CDL has installed close to 8,000 PBUs in its residential projects to date. Its wide adoption of PBUs has helped reduce material wastage and improve water tightness. As PBUs are easy to install, productivity has improved by about 77%. CDL has also adopted drywalls as they provide better-quality finishes and are easier to install, compared to traditional brick walls. The use of drywalls has improved productivity by about 180%.

Platinum winner Housing and Development Board (HDB), the largest housing developer in Singapore, drives productivity with a three-pronged approach. During pre-construction, the use of BIM allows various parties to communicate on a common platform, thus reducing construction conflicts. During construction, its builders are required to use equipment that helps improve productivity on site. Finally, at the post-construction stage, HDB reviews their designs, materials and methods based on feedback from residents and incorporates improvements in future projects.

HDB also stands out for its extensive use of precast technology since the 1980s. To speed up construction, it uses precast façades with cast-in windows, columns, floor slabs, staircases and refuse chutes. In particular, the use of precast façades with cast-in windows has helped improve productivity by about 300%.

DLE M&E Pte Ltd is a one-stop integrated contractor for M&E services. The firm is committed to improving productivity through detailed site planning, optimising mechanisation and a strong focus on skills training.

Build Smart interviews Ms Sarah Tham to learn how DLE advocates productivity.

Productivity Initiatives:

- **Adopting productive technologies:** With co-funding from the Mechanisation Credit (MechC) Scheme, DLE purchased scissor lifts to improve the efficiency of electrical conduit installation. This method has since replaced scaffolding, a highly labour-intensive traditional method.

- **Training and upgrading:** DLE also places emphasis on the skills of its workers. It has utilised the Construction Productivity and Capability Fund (CPCF) to help subsidise training costs.

**Q**: How has DLE benefited from advocating productivity?

**A**: With the use of machinery and technologies in our processes, we have been able to significantly reduce the man-hours required to carry out the same tasks. This has therefore directly led to cost savings. Staff training has resulted in an increase in productivity, which has in turn helped improve staff satisfaction and ultimately boost staff retention.

**Q**: What were the challenges faced and how has DLE overcome them?

**A**: There is always inertia to change. However, with careful change management and clear communication, we have been able to guide our people to step into areas not attempted before. We also have a strong team of committed people who are willing to explore and implement new productivity initiatives.

**Q**: What advice would you give other companies embarking on their productivity journeys?

**A**: Never give up. Persistence and commitment to the end result can help us get over the bumps along the way. So, always have the end picture in mind. It also helps to have productivity advocates within your own company who are always on the lookout for ways to improve processes.
Lastly, the adoption of an advanced system formwork and scaffold system simplified and sped up the construction of slabs and columns. The integrated features of the scaffold system enabled columns to be casted daily with minimal material requirement and maximum productivity gain. In addition, the smart design of the advanced system formwork allowed props to be stationary when the slab formworks were removed. This saved time for re-propping and increased productivity on site.

Building Information Modelling

Through the contractor’s initiative, Building Information Modelling (BIM) was also adopted to improve 3D visualisation and clash detection for the project. BIM also helped eliminate errors during construction as well as help estimate the required quantity of materials.

About the Construction Productivity Steering Committee (CPSC)

The Construction Productivity Steering Committee (CPSC) was formed this year to co-ordinate inter-ministry support for the built environment sector’s transformation efforts. It will help to accelerate productivity improvement by simplifying rules and regulations using public sector projects as a basis, to stimulate demands for more innovative and productive methods of construction.

LEARNING POINTS FROM WATER TERRACES I AT PUNGGOL

The Construction Productivity Steering Committee learns more about the technologies used in the construction of this award-winning project

On 7 October 2013, the Construction Productivity Steering Committee (CPSC) visited Waterway Terraces I at Punggol to learn more about the productivity initiatives adopted in the project.

Precast Technology

The project adopted extensive precast technology, which helped in achieving significant productivity gains and high quality. The use of precast increased due to two key factors:

a. Contractor’s input at the construction stage. The original design proposed by the consultant required the use of 2D panels which would be hoisted and fused together in situ on site. With the contractor’s inputs, the fusing of the panels was done at the precast yard instead to create a volumetric 3D component before the component was delivered on site. This reduced the number of precast components that were needed to be hoisted by 20%, and improved workplace safety.

b. Availability of a nearby site for precast production and storage. HDB facilitated and supported the contractor to secure a Temporary Occupation Licence (TOL). This enabled the contractor to set up an on-site precast and storage yard of 10,000m² just beside the project site. The proximity to the project site allowed for shorter transport time and an easier shifting of heavy materials.

01. Waterway Terraces I, an iconic project with an award-winning design, is the first public housing project along Punggol Waterway built by the Housing and Development Board (HDB). The project is expected to be completed in 2015. 02. Precasting at Temporary Occupation Licence (TOL) site.

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The use of scissor lifts and boom lifts also reduced the need to install scaffolding, which was a time-consuming process.
The machine was developed based on principles from the rapid load testing process, and can lift weights that are up to four metres high.

Gone are the days where many heavy concrete blocks were stacked to test for pile capability. The StatRapid, a new rapid load testing equipment, is an alternative to the traditional static load testing method. With the StatRapid, the construction process is faster and lighter, and uses less labour.

Each StatRapid comprises a modular drop mass, a catch mechanism and a modular soft spring system. The mechanism of assembling and dismantling concrete blocks is not as complex as the conventional method, and is hydraulically operated, requiring few men to carry out the operation.

The development of the StatRapid is based on principles from the rapid load testing process. Advances in technology aided the development of this self-contained machine, which is capable of loading weights of up to four metres high. Adhering to the rapid load testing principles, the loading pulse generated on the pile by the StatRapid is equivalent to that of the static load testing method.

**StatRapid**

- **What it is:**
  A rapid load testing equipment that assembles and dismantles concrete blocks quickly.

- **Benefits:**
  With the StatRapid, only 6 workers are needed for every pile load test, which can be completed in 2 days. Using concrete blocks, 18 workers are needed, and 16 days are required for completion.

**Get Support to Invest in the StatRapid**

The Building and Construction Authority’s (BCA) Productivity Improvement Project (PIP) Scheme encourages contractors and prefabricators to embark on development projects that build up their capability and improve their site processes for higher site productivity. Find out how PIP can support your investment in technologies like the StatRapid by visiting this link: [http://www.bca.gov.sg/PIP/pip.html](http://www.bca.gov.sg/PIP/pip.html).

**Kentledge pile loading test with concrete blocks**

**StatRapid pile loading test**

**StatRapid pile loading test StatRapid 桩柱负重测试**

**快速有效的负重测试法：STATRAPID**

这款机器以快速负重测试的原理为基础，可以举起高达四米的重物。

将许多沉重的混凝土块堆叠起来，进行桩柱的负重能力测试，已成为过去式了。StatRapid这种新的快速负重测试设备，是替代传统负重测试的另一个选择。StatRapid能加快工程的速度，更能节约人力物力。

每一台StatRapid由压降模块、锁定装置和软簧模块组成。StatRapid组装和分拆混凝土块的工序由液压操控，所需的人力不多，也比传统的方法更为简易。

StatRapid是以快速负重测试的原理为基础，经过不断的改良、设计而成的。这套功能齐全的设备，可以举起高达四米的重物。StatRapid根据快速负重测试原理，所施加于桩柱的负重冲击，与传统的静重测试相等。
Companies can benefit when they help other builders and subcontractors improve their productivity through the MechC Referral Programme.

In April 2013, the Building and Construction Authority (BCA) introduced a Mechanisation Credit (MechC) Referral Programme to encourage more builders to mechanise their work processes and improve construction productivity. The programme incentivises builders that have successfully tapped into the MechC incentive scheme to share its benefits with other builders and subcontractors.

About the MechC Scheme
The Mechanisation Credit (MechC) Scheme provides support to SMEs to adopt technologies by defraying the cost of purchasing or leasing equipment that reduce manpower at construction sites.

Currently, MechC has a limit on the funding amount per firm. Each firm can tap into a maximum funding of $200,000 for the purchase of equipment and $50,000 for the leasing of equipment. Since the scheme took off in June 2010, BCA has received approximately 2,200 MechC applications to date.

For more information about the MechC Scheme and MechC Referral Programme, please visit http://www.bca.gov.sg/MechC/mechc.html for more information.

A few builders have benefitted since the launch of the MechC Referral Programme. An example is Poh Lai General Contractor Pte Ltd, which learnt about the MechC Scheme from CCM Industrial Pte Ltd. CCM had previously received funding under the MechC Scheme to purchase equipment such as a telescopic handler, two tower cranes and three reflectorless total stations, to improve productivity on site.

Under the MechC Referral Programme, CCM enjoyed an additional $20,000 credit to its MechC funding cap, as an incentive for the successful referral. On the other hand, Poh Lai General Contractor tapped into the MechC Scheme to purchase an electric airless paint spray. By tapping into the MechC Scheme, the company was able to save 70% of the investment cost of the equipment and improve their productivity in painting work by almost 70%.

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BIM CHAMPIONS

Three winning teams from BIM competitions organised by BCA share with us the process, challenges and learning points

A total of 45 teams successfully competed in two competitions relating to Building Information Modelling (BIM) organised by the Building and Construction Authority (BCA) in conjunction with the Singapore Construction Productivity Week. We speak to the winners of the 48-Hour Virtual BIM Competition 2013 and the inaugural BIM Mobile Apps Challenge 2013.

48-HOUR VIRTUAL BIM COMPETITION 2013

The 48-hour virtual BIM Competition 2013 aimed to get teams from across the world to demonstrate the capabilities of BIM and its benefits within a short timeframe.

Winner of 48-Hour BIM Competition 2013


Do Hyoong Kim
General Manager, Architecture Research Institute (BIM) Heerim Architects & Planners Co., Ltd.

Q What motivated the team to participate in BCA’s BIM Competition 2013? How did the team feel after winning the competition?
A As a company, we wanted to see where we were standing in terms of using BIM, and we wanted to know how to progress from where we were.

Unfortunately, I was the only one who was in Singapore for the presentation and who heard the winning news for the first time. However, everybody involved in the competition was certainly highly pleased. Even though we’re now back in our office in Korea, we’re still learning from the achievement.

Q What were some of the challenges faced by your team in preparing for and during the competition? How did the team overcome these?
A In reality, our team was new. We never worked together before. We tried to build team spirit quickly and we enhanced our teamwork at a couple of meetings before the competition began.

The second challenge was the physical mock-up test. We had experience in digital BIM products but not the physical ones. We thought that it was quite risky and challenging to make the physical mock-up within 48 hours, but had in mind to make a model. We set a deadline to send out the data for making a mock-up on the second day of the competition. As we had shown, the mock-up test was successfully done at last even though there were minor complications.

Q What did the team learn from the competition?
A First, we had the opportunity to test and simulate a BIM-based integrated project, which rarely happens in the Korean architecture, engineering and construction industry.

We could also establish each discipline’s coordinating capability by cross-checking all the issues such as clashes from the early design phase. We also learnt to set modelling guidelines, which taught us how to share data more efficiently amongst the various disciplines.

We are now more confident of being good BIM coordinators. The competition encouraged a BIM mindset in everyone. We began to think about efficiency not only within individual works but across the products of various disciplines.

Could you share with us some of the innovations that were implemented during the competition? What do you think helped the team to win in the competition?

We showed how to better collaborate and submitted our deliverables making use of the innovative ways of implementing the multi-disciplines under the open BIM environment.

These were exemplified by the diverse programmes we used: Rhino and Grasshopper interlinked with Ecotect and Galapagos were simulated in order to optimise sun-shade solution, Perforation ratio, slop, and depth of the façade were carefully selected based on the results of the simulation. We also tried to test BIM sight, PyroSim and Pathfinder, which are not commonly used in Korea.

The winning team from Heerim Architects & Planners and BIM images of their winning entry, 01 to 03.

Winner of 48-Hour BIM Competition 2013

(Education – Multidisciplinary Collaboration Category): National University of Singapore

Mr Koe Choon Wei
National University of Singapore (NUS)

Q What motivated the team to participate in BCA’s BIM Competition 2013? How did the team feel after winning the competition?
A We had an interest in BIM, and the technology is playing an important role in the construction industry. We recognised the learning opportunity that the BIM competition would offer, which was apart from our school curriculum – it exposed us to real-world situations and issues.

The team was elated to have won as it was the first time that most of us participated in such a major competition.

Q Could you share with us some of the innovations that were implemented during the competition? What do you think helped the team to win the competition?
A We used Navisworks 2014 to combine 4D and 5D to simulate the construction cost and duration together. It allows us to view how the cost varies as the construction proceeds. This would help in cashflow forecasting and determining which period of time requires the most amount of money.

Second, we harnessed BIMx from Graphisoft ArchiCAD. BIMx allows us to create a controlled walkthrough of the building model on the iPad. The use of the iPad and its inherent touch function allows information such as dimensions to be easily read off the screen just by placing fingers on the various building elements of the model. This is a faster and easier way to retrieve basic information compared to the conventional way of searching through massive documents stored in the hard-drives of laptops and computers.

The team spirit and support we provided to each other throughout the 48 hours played an important role for us to persevere throughout the competition and complete it despite the lack of sleep and the toughness.

What were some of the challenges faced by your team? How did the team overcome these?
A As most of us were relatively new to the concept of BIM and the various software, the biggest challenge was to understand how we could work together.

The team was also given a short timeframe of a three-day intensive training provided by Vinx to familiarise ourselves with ArchiCAD and Solibri Model Checker. We also had a month of self-learning. We watched tutorials on YouTube and the scouted the Internet for additional information on the competition software.

We were also very fortunate to receive guidance from our seniors who had previously participated in the competition.

What did the team learn from the competition?
A BIM is not simply here to replace traditional methods of planning, but to further enhance and speed up the construction process and collaboration. The biggest benefit of BIM is its ability to improve planning and construction productivity by minimising errors and achieving a reduction in variation orders.

Collaboration between different parties at different stages of the project and interoperability between different software are very important too and this has to be planned out at the beginning of the project in order to ensure the successful implementation of BIM.

Communication plays an important role in the usage of BIM, as each party must be aware of their roles and responsibilities as well as the ability to pass on the correct message to the right person at the right time in order to speed up the planning process.

Q What were some of the challenges faced by your team? How did the team overcome these?
A Despite the lack of sleep and the toughness.

Communication plays an important role in the usage of BIM, as each party must be aware of their roles and responsibilities as well as the ability to pass on the correct message to the right person at the right time in order to speed up the planning process.

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The winning team from Woh Hup (Pte) Ltd.

Mr Phan Manh Quyet
Deputy BIM Manager
Woh Hup (Pte) Ltd

What were some of the innovations that the team came up with?
We created a live communication programme called WHapp. This programme allows users to send information accurately and instantly into a cloud database. Parties who have access to WHapp, such as site engineers, quantity surveyors, managers and BIM modellers, can retrieve or update information on precast components anytime and anywhere.

What did the team learn from the competition?
BIM mobile apps is a new trend, so we learnt a lot from our research and also how to troubleshoot bugs and problems. All these cannot be done without proper planning, teamwork and passion.

We're glad that the management of Woh Hup has given us such big support and encouragement to innovate. Winning this competition is a big encouragement for us to continue with our BIM journey.

What were some of the challenges faced by your team in preparing for and during the competition? How did the team overcome?
The team lacked programming background, and there are limitations to existing BIM software and the cloud platform to exchange data. To overcome these problems, we did extensive research and planned in detail the schedule and scope of work. Two months before the competition, the team learnt and familiarised ourselves with the programming tools.

What did the team feel after winning BCA's inaugural BIM Mobile Apps Challenge 2013?
We were very excited and happy! It's an honour for us to win this inaugural competition as there are no past winning entries to study on, and we were not fully aware of the expectations and criteria of the judges.

Strong support from the management motivated us to join the BIM Mobile Apps Challenge. We also saw it as a challenge to improve our BIM skills and implement BIM in our workflow efficiently and effectively.

What did the team learn from the competition?
To register as a CoreTrade Tradesman in Construction Plant Operation, CoreTrade Trade Foreman or Multi-skilled Worker, the worker needs to take and pass both practical and theory test components. The theory test paper has translations in Chinese, Tamil and Thai.

Is there funding support available for upgrading my workers?
Yes, BCA’s Workforce Training and Upgrading (WTU) scheme co-funds up to 80% of the costs of selected skills assessment and training courses approved by BCA. WTU funding supports the upgrading of both local and foreigners who meet the qualifying criteria.

The CoreTrade/Multi-skilling registration is valid for 2 years. How can I renew my workers’ registration?
You may apply for renewal online within 6 months before the worker’s registration expires. The worker needs to go through a half-day Continual Educational Training (CET) course before he can renew his registration.

My worker is already registered as a CoreTrade Tradesman. How can he upgrade to Foreman?
To register as a CoreTrade Tradesman (except for Construction Plant Operation), the worker needs to take and pass both practical and theory test components. The theory test paper has translations in Chinese, Tamil and Thai.

To find out more about skills upgrading, please visit our website: http://www.bca.gov.sg/Professionals/manpower/manpower.html

What are the benefits of upgrading my workers?
Under the Ministry of Manpower (MOM) skills and levy framework, “Higher Skilled” workers can stay in Singapore for up to 18 years and their employers pay lower levy. In addition, these workers are more productive and would contribute more to their employers.

How can I upgrade my workers?
Employers can send their eligible workers for registration under the CoreTrade or Multi-skilling Schemes. Eligible applicants can apply for the associated training and tests at BCA Academy and/or the 28 Approved Training and Testing Centres (ATTCs).

My workers cannot read and write in English. I’m afraid they can’t pass the test.

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A CoreTrade Tradesman with 6 years of construction experience in Singapore may take a theory test to upgrade to Foreman.
Call for nominations: construction productivity awards 2014

Recognising companies and teams on their productivity journey

Has your firm or project team been embarking on a productivity journey to explore alternative ways to build smarter and faster? Then you may just be the one we are looking for!

In its fourth year, the Construction Productivity Awards (CPA) 2014, organised by the Building and Construction Authority (BCA) aims to honour outstanding firms and industry that go the extra mile in achieving construction productivity. There are two award categories: CPA-Advocates and CPA-Projects.

Submit your nominations for CPA 2014 today!

CPA-Advocates

This is a new category introduced in 2013. It recognises outstanding developers, consultants, builders and subcontractors for their achievements in improving productivity at the firm level. Developers, consultants and builders are recognised for the adoption of designs, construction methods, processes and/or technologies that have significant productivity impact on their projects.

CPA-Advocates has four sub-categories:

1. Developer
2. Consultant
3. Builder (Open)
4. Subcontractor (Prime)

Assessment criteria:

1. Buildable design score
2. Constructability score
3. Productivity performance (physical and value-added productivity)
4. Productivity initiatives

CPA-Projects

This category recognises project teams that have demonstrated productivity in their construction development projects from the design to the end of the construction process. It aims to encourage designers to come up with labour-efficient designs; encourage project teams to adopt labour-efficient construction methods; and honour project teams for their excellent project planning and coordination in enhancing productivity.

CPA-Projects has nine sub-categories:

1. Residential Landed Buildings
2. Residential Non-landed Buildings (for projects with Gross Floor Area of less than 25,000m²)
3. Residential Non-landed Buildings (for projects with Gross Floor Area of more than or equal to 25,000m²)
4. Commercial and Office Buildings
5. Institutional Buildings
6. Industrial Buildings
7. Mixed Development Buildings
8. Additions & Alterations/Upgrading Buildings
9. Civil Engineering Projects

Assessment criteria for building projects:

1. Buildable design score
2. Constructability score
3. Simplicity for construction
4. Design and construction integration
5. Aesthetics

Assessment criteria for civil engineering projects:

1. Design for ease of construction
2. Construction technology and site management
3. Design and construction integration
4. Innovative designs and products

All nominations must be submitted to BCA by 31 December 2013.

For more information on the CPA and nominations, please visit http://www.bca.gov.sg/Awards/CPA/cpa.html.

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A combination of the previous CPA – Best Practices and Innovations and the CPA – VAP, CPA-Advocates now gives more focus to and better recognises the contributions of various stakeholders.

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<tr>
<td>Starting in Feb 2014</td>
<td>Bachelor of Construction Management (Building) (awarded by The University of Newcastle, Australia) (Full-Time / Part-Time mode will be available)</td>
<td>BCA Academy</td>
<td></td>
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<tr>
<td>21 May 2014</td>
<td>Half Day Course on Basic Concept in Construction Productivity Enhancement (14th Run)</td>
<td>BCA Academy</td>
<td></td>
</tr>
<tr>
<td>Date/Time</td>
<td>Event Name</td>
<td>Venue</td>
<td>Contact Person &amp; Details</td>
</tr>
<tr>
<td>20 Dec 2013</td>
<td>Structural BIM e-Submission Briefing</td>
<td>BCA Academy, Blk B, Level 2, IT Lab 3, 200 Braddell Road, Singapore 579700 / BCA Academy</td>
<td>Mr Sonny Andalis Tel: 6730 4438 Email: <a href="mailto:sonny_andalis@bca.gov.sg">sonny_andalis@bca.gov.sg</a></td>
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# 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
- Advanced NBQ in Supervision and Coordination of M&E Works
- NBQ in Operation & Maintenance
- Higher NBQ in Operation & Maintenance
- Advanced NBQ in Operation & Maintenance

16 NEW COURSES ARE NOW AVAILABLE. 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)
- Builders 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
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 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