BIM ROADMAP
BUILDING BIM CAPABILITY AND CAPACITY
THE SINGAPORE CONSTRUCTION PRODUCTIVITY WEEK 2013

BIM - THE WAY FORWARD

Bedok Mixed Development
Image courtesy of CapitaLand and CapitaMalls Asia
Dear readers,

Game-changing technologies such as 3D modelling have the potential to significantly improve the way we work. In the medical field, companies are already converting 2D images from CT scans and magnetic resonance imaging (MRI) into 3D models for more precise surgical planning and informed risk analysis.

In the built environment sector, 3D Building Information Modelling (BIM) integrates project processes and reduces costly rework and conflicts during construction. Relationships and information built into BIM models enable different stakeholders in the value chain to have a clearer vision of the project and make more informed decisions faster.

In this special issue on BIM, we highlight some of BCA’s initiatives under the BIM Roadmap to address the challenges faced by the industry in transitioning from 2D CAD to BIM. For instance, starting July 2013, BCA requires BIM e-submission for regulatory approval in phases, a world’s first by any government agency. To help the industry catch on the BIM wave, BCA has also been working with the industry to develop BIM guidelines to help beginners learn how to use BIM effectively in the shortest possible time. Courses on BIM and chaperon services to businesses that need assistance when implementing BIM are also conducted to develop capabilities in BIM.

As we continue our journey to have 80% BIM adoption by the built environment sector by 2015, more can be done to expedite BIM adoption in our industry and the region. BCA will convene the second International Panel of Experts’ Meeting for BIM (IPE-BIM) during the Singapore Productivity Week (SCPW) this year, to review existing BIM policies and programmes and seek the panel’s advice on what more can be done to proliferate the use of BIM in Singapore. BCA will also host an inaugural Government BIM Symposium this year for public sector agencies from different countries to share learning points, explore collaborations in applied BIM R&D, and work towards harmonisation of BIM standards in the Asia Pacific.

Many other events such as the Build Smart Conference, Skilled Builders Competition and BuildTechAsia Exhibition will also take place during SCPW. I strongly urge everyone to participate in these events to learn new skills and the latest productivity know-how, and be engaged in the productivity conversation.

Dr John Keung
Chief Executive Officer
BIM ROADMAP

Industry-wide BIM adoption by 2015

In November 2010, BCA formulated the BIM Roadmap to steer the industry towards wide adoption of Building Information Modelling (BIM) by 2015. BIM was identified as one of the key technology drivers to improve productivity and level of integration across the various disciplines in the construction value chain.

Here are the five strategies developed under the BIM roadmap to address the challenges faced by the industry in transitioning from 2D CAD to BIM.

### Strategic thrusts:

1. **Public Sector Takes the Lead**
   - BCA has collaborated with Government Procurement Entities (GPEs) to request the use of BIM for new public sector building projects from 2012.
   - BCA worked with GPEs and their industry partners in preparation for the new requirements.

2. **Regulatory Approval**
   - Since January 2010, architectural BIM e-Submission has been officially accepted by participating agencies of the Construction and Real Estate NETwork (CORENET), followed by engineering BIM e-Submission in April 2011.
   - Starting July 2013, BIM e-Submission for regulatory approval would be made mandatory in phases.

3. **Remove Impediments**
   - BCA developed a set of submission templates and guidelines to help professionals understand the new process of regulatory submission using BIM.
   - BCA is also working with GPEs, professional bodies and buildingSMART Singapore to develop project collaboration guidelines and an object library standard.

4. **Build BIM Capability and Capacity**
   - BCA’s training arm, the BCA Academy, launched short courses on BIM.
   - BCA engaged various tertiary institutions to include BIM training in their curricula.
   - BCA also provided “chaperon” services to businesses who needed assistance when doing BIM project implementation and regulatory submission for the first time.

5. **Incentivise Early BIM Adopters**
   - The BIM Fund* was introduced to help defray initial investment costs for BIM training, consultancy services and purchase of hardware and software for businesses and projects.

*Part of the Construction Productivity and Capability Fund (CPCF) for BIM adoption

### Challenges faced by firms during BIM adoption:

- **Lack of Demand for BIM**
- **Entrenched in the Current 2D CAD Drafting Practices**
- **Steep Learning Curve to Build Up BIM Expertise**
- **Lack of Ready Pool of Skilled BIM Manpower**

**REVIEWING THE ROADMAP**

The BIM Roadmap was revised in 2011, taking into consideration recommendations made by the International Panel of Experts on BIM.

Revisions include:

- Strengthening the strategic thrusts “Public Sector Takes the Lead” and “Building BIM Capability and Capacity”
- Introducing initiatives such as the “National BIM Leadership” and “International Collaboration” to push Singapore towards the next level of excellence
REMOVING IMPEDIMENTS

How the BIM journey is made smoother

A MODEL FOR THE INDUSTRY:
SINGAPORE BIM GUIDE

BCA has worked with Government Procurement Entities (GPEs), professional bodies and buildingSMART Singapore to develop the Singapore BIM Guide, BIM Particular Conditions and BIM Essential Guides that will help the industry lay foundations in BIM implementation.

The Singapore BIM Guide, launched at the 2nd Singapore Construction Productivity Week in May 2012, was developed after several months of intensive background studies and industry consultations. Public sector procurement entities have adopted the Guide for their projects.

To download a PDF version of the Singapore BIM Guide, log on to: www.corenet.gov.sg/integrated_submission/bim/bim_guide.htm

A PARTNER WITH THE INDUSTRY:
BIM STEERING COMMITTEE

BCA set up the BIM Steering Committee (BIMSC) in July 2011 with two main objectives. BIMSC will lead the development of BIM standards and supporting resources to facilitate a collaborative use of the technology. It will also advise on areas for the effective implementation of BIM at the company, project and industry levels, and address issues impeding the industry’s adoption of BIM.

To meet the objectives outlined above, BIMSC has formed three workgroups.

AN ONGOING CONVERSATION WITH THE INDUSTRY:
BIM MANAGER FORUMS

While BIMSC has been very active in driving the development of BIM standards and policy changes at the industry level, there is also a need to form a technical forum to look into software and practice issues faced by end-users of BIM.

In 2012, BCA invited BIM managers and BIM co-ordinators from various local firms to participate in the BIM Manager Forum. Most of the participants are experienced BIM users coming from different disciplines and a majority of them help in the in-house training and BIM deployment within their company.

Meeting regularly – to garner feedback, exchange information and share technical solutions – has been a very fruitful and essential step in their BIM adoption journey.
BUILDING BIM CAPABILITY AND CAPACITY

Various tertiary institutions have come on board to provide BIM training to students

With an increasing market demand for graduates capable in Building Information Modelling (BIM), many institutes of higher learning in Singapore have incorporated BIM technology into their programmes.

Initially, getting the buy-in of the teaching staff and developing BIM trainers were challenging. However, through outreach programmes and BIM-related events organised by the Building and Construction Authority (BCA), staff and trainers from various institutions learnt and appreciated the value of the technology and began working closely with their students to participate in BIM studio projects and competitions.

Build Smart explores how three institutions run their BIM training.

INSTITUTE OF TECHNICAL EDUCATION (ITE) COLLEGE CENTRAL
School of Design and Media Architecture

ITE College Central School of Design and Media Architecture Department has incorporated BIM as a core module since 2010. The BIM curriculum started off in 2011 by focusing on the graduating batch of students. The next year, it was further extended to Year 1 students to cover the fundamentals of BIM and its value. Today, the school has four modules that fully incorporate BIM teaching and training.

### NUMBER OF STUDENTS ENROLLED IN BIM MODULES

<table>
<thead>
<tr>
<th>Year</th>
<th>Year 1 (Foundation Year)</th>
<th>Year 2 (Specialisation Year)</th>
<th>Total Number of Students Officially Trained in BIM</th>
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<tr>
<td>2011</td>
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<td>65</td>
<td>65</td>
</tr>
<tr>
<td>2012</td>
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<td>65</td>
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<tr>
<td>2013</td>
<td>74</td>
<td>69</td>
<td>143</td>
</tr>
</tbody>
</table>

**IN CONVERSATION**

**“We allow staff to witness the potential and power of BIM”**

Mr Andy Chua Eel Woei
Lecturer in Architecture and BIM Coordinator

**Q** How do you develop teaching staff to champion BIM courses? What factors led your institution to transit from 2D CAD to 3D BIM?

**A** Our school has strong support from the management and the Curriculum Development Division. We allow staff to witness the potential and power of BIM. We also encourage them to constantly engage students through projects.

As a leading vocational institution in Asia, we must be at the forefront of technology and pave the way to transit from a 2D generation in architecture to a 3D BIM era. With this mission, we are able to invest on developing the BIM technical skills set of our teaching staff and students.

The department has also witnessed a higher employment rate of our students with BIM skills. These students are better equipped and more confident when they are equipped with BIM know-how.

**“With BIM, learning is more interesting”**

Mr Benjamin Wong
Student, Nitec in Space Design (Architecture)

**Q** How do you find the BIM modules so far?

**A** Now, with BIM, we are able to understand the building construction process better because it goes beyond 2D, learning is more interesting. We always look forward to the practical BIM lessons. The lecturer shares many good tips on how we can leverage BIM from design development to documentation and construction.

**“I am keen on finding solutions through BIM”**

Mr Dominic Song
Graduated Student, Nitec in Space Design (Architecture)

**Q** How did you overcome the challenges in learning BIM?

**A** Indeed, there was a steep learning curve at the beginning when we were trying out BIM. However, I remained curious about the technology. I am also keen on finding solutions through BIM. Now, I have become more confident with BIM knowledge. I am currently studying at Singapore Polytechnic, and here, I am able to apply the BIM skills set I gained from the ITE.
How does the School of Building and Development in BCA Academy collaborate on or share BIM-related courses with industry stakeholders? What is your institution’s next plan when it comes to BIM training?

We have the Final Year Project (FYP) structure, where the school collaborates with industry stakeholders that offer actual projects for students to work on in campus. During our most recent FYP round, we collaborated with five organisations such as Housing and Development Board (HDB), People’s Association and Elmich Pte Ltd. The projects involved conversions of existing building facilities into BIM models. In this way, our students gained valuable, real-world experiences in BIM and are better prepared when they enter the job market. Industry stakeholders benefited as well, as we allowed them to tap into the students’ works for their own operational purposes, such as Facility Management and Space Planning.

In the future, we are planning to offer a full range of BIM courses in all diploma programmes and to enhance our capacities with a core of BIM lecturers, who will spearhead the school towards BIM and overall learning excellence.

What are your experiences with BIM so far?

I was assigned to work on the Centre for Construction IT project in BCA Academy during my industry attachment. I assisted my mentor in promoting BIM to the industry. I also did BIM models to showcase the technology’s capabilities. An obvious benefit of using BIM is that it can save time. With BIM, discrepancies and missing information are resolved early during the design development stage of the project. Time is not wasted later in solving problems. Also, standard building elements can be created for easy quantity take-off.

What are your experiences with BIM so far?

I was involved in an actual BIM project for HDB while doing my FYP at BCA Academy. It was probably my BIM skills set and knowledge that helped me secure my current job in Dragages Singapore as a BIM operator. At Dragages, I was given a three-day training in BIM. Soon after, I was assigned to work on a major project. I encountered problems working on it, as I was not yet familiar with the operations of the company. Fortunately, I have good colleagues who assisted me in overcoming the problems. So far, it has been a good working experience and my BIM knowledge accumulated from school has given me the confidence to carry out projects for Dragages.

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INNOVATE, TRAIN, SAVE COST

RSP Architects Planners & Engineers harnesses the BIM Fund to explore the capabilities of the technology and build in-house expertise

The Building Information Modelling (BIM) team at RSP Architects Planners & Engineers Pte. Ltd. has always focused on innovation, and they are ever excited to explore BIM’s capabilities in coordination, checking and collaboration. The firm has developed BIM tools for data-centric design, the computation of buildability score and the validation of code compliance, amongst other solutions. To date, RSP Architects Planners & Engineers has worked on 20 large and medium-sized projects using BIM, with 17 projects submitted for regulatory BIM e-Submission, at various stages of design, tender and construction.

IN CONVERSATION

Q: What motivated your management to transit from 2D CAD to BIM?
A: We believe in the potential of BIM. Compared to conventional CAD, BIM provides better accuracy and development throughout the design process. It offers easy and user-friendly visualisation to the client, consultants and contractors, and possess a powerful capability for clash control, code checks and validation.

Working on recent BIM projects with our federated models, we feel that there is now greater clarity of expectations, improved communication and design coordination, and more effective design improvements achieved in the design development and construction process.

Q: What were the challenges faced by your team when embarking on your BIM journey?
A: The primary challenges at the beginning were the steep learning curve and the inadequate skill level of the modeller and architecture project teams. They were relatively new to BIM and its concepts, and there were many learning points and adjustments to be made to integrate BIM optimally into the job scope. To overcome these, we conducted and customised our In-House Revit Training to build up our foundation in BIM competency.

The other challenge was to procure sufficient and appropriate resources for our BIM deployment, especially software and hardware. Due to the large amount of capital investment required, the BIM Development Team meets every month to revisit our RSP BIM Roadmap and our BIM deployment strategies. The BIM Fund has indeed helped to defray some of our initial investments.

Q: How did you build in-house capability to champion BIM implementation?
A: Since 2011, we developed a useful two-tier BIM Capability Assessment System to improve the skills of each of our modellers and the firm’s overall BIM capability. We have taken a similar approach to BCA’s annual 48-hour BIM Competition. Our three-hour individual proficiency test is the first tier of assessment for the modeller to evaluate his personal level of capability. As a progression within the Assessment System, the second tier involves the Group-based Collaborative Competition. This takes RSP’s BIM development a step closer to BIM principles by focusing on fostering teamwork, modeling strategies and communication, which are over and above individual modeling capabilities. The teams compete amongst themselves to build a model within three hours, and then present their results for panel evaluation. Such healthy competition is highly effective for learning and team bonding, and the staff truly enjoy it.

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3 BIM INNOVATIONS BY RSP ARCHITECTS PLANNERS & ENGINEERS

1) LTA Car Park Headroom/Obstruction Free Zone
   BIM identifies car park headroom non-compliances before the Certificate of Statutory Completion (CSC) stage so as to meet LTA’s Code of Practice on Vehicle Parking Provision.

2) Universal Design (UD) Path Clearances
   BIM identifies areas of non-compliance with the designated path’s clearances in the UD Guidelines.

3) Stairs Widths and Headroom Clearances
   BIM identifies widths and headroom non-compliances for complex forms, or where there are structural constraints. This is one of the common non-compliance items during the application of the Temporary Occupation Permit (TOP).

HARNESSING THE BIM FUND

RSP Architects Planners & Engineers applied for the BIM Fund to help defray the initial investment costs of training, manpower, software and hardware. So far, the company has benefitted from the BIM Fund through six applications.

To encourage the industry to come on-board the BIM journey as early as possible, BCA has rolled out the BIM Fund under the Construction Productivity and Capability Fund (CPCF) since June 2010. To date, more than 500 firms have tapped into $12 million of the fund. Also, over 3,000 practitioners from these firms have attended various forms of BIM training.

Find out more about the BIM Fund and how it can help your firm by visiting www.bca.gov.sg/BIM/bimfund.html
BUZZ

THE SINGAPORE CONSTRUCTION PRODUCTIVITY WEEK 2013

The upcoming Singapore Construction Productivity Week (SCPW) 2013 is the hallmark event to celebrate the construction industry’s productivity journey.

From 29 July 2013 to 2 August 2013, Singapore Expo and Max Atria will be abuzz with plentiful activities, including the Skilled Builders and Building Information Modelling (BIM) Competition, BuildTech Asia Exhibition, Build Smart Conference and the International Panel of Experts’ Meeting for BIM (IPE-BIM).

SCPW 2013 presents a great platform for suppliers, developers, architects, consultants and builders to come together and exchange ideas in transforming the construction industry towards higher productivity. Keep a lookout for these activities happening during the week!

MARK THE DATES!

KEY EVENTS AT SCPW 2013

31 July 2013 – 2 August 2013
BuildTechAsia2013 Exhibition

31 July 2013
Build Smart Conference (Productivity)

2 August 2013
Productivity Race

BIM DATES AT SCPW 2013

29 July 2013
BIM Competition Finalists’ Presentation and Final Judging

30 July 2013
International Panel of Experts’ Meeting for BIM (IPE-BIM) – by invitation

31 July 2013
• Government BIM Symposium 2013 – by invitation
• IPE-BIM Workshop – by invitation
• Prize Giving for BIM Competition and BIM Mobile Apps Challenge 2013

1 August 2013
• Build Smart Conference (BIM)

LOOK OUT FOR THESE KEY EVENTS AT SCPW 2013:

SKILLED BUILDERS COMPETITION: Industry practitioners and professionals display their skills in handling some of the latest technologies and construction methods for site productivity.

PRODUCTIVITY RACE 2013: Organised in collaboration with the National University of Singapore (School of Design and Environment), Productivity Race 2013 allows freshmen of construction-related courses to be acquainted with construction technologies and methods that harness higher productivity.

BUILD SMART CONFERENCE: Featuring a host of local and international speakers, the conference is an excellent platform for industry players to learn about best practices, construction productivity trends and case studies. The two-day conference will focus on “Productive Technologies and Processes” and “Innovate-Integrate-Transform with BIM” on Day 1 and 2 respectively.

BUILDTECHASIA 2013: The region’s leading trade show for the building and construction industry, BuildTechAsia 2013 identifies technologies and processes that play important roles in transforming construction productivity.

BIM AT SCPW 2013

Apart from the 48-hour BIM Competition, BCA is also organising the inaugural BIM Mobile Apps Challenge 2013. The BIM Mobile Apps Challenge 2013 will commence on 6 May 2013, 9 a.m. and end on 28 June 2013, 9 a.m. in Singapore Standard Time.

To find out more about the competitions, visit: www.sgbimcompetition.com

BIM INTERNATIONAL PANEL OF EXPERTS MEETING 2013

BCA will host the second International Panel of Experts’ Meeting for Building Information Modelling (IPE-BIM) from 30 July 2013 to 1 August 2013 at Singapore Expo. A total of six internationally renowned experts are part of BCA’s international panel of experts in BIM, and they will review and advise on the BIM policies and programmes BCA has implemented. For more information on IPE-BIM, turn to page 14.

GOVERNMENT BIM SYMPOSIUM 2013

BCA is hosting the inaugural Government BIM Symposium on 31 July 2013. The objective of the Government BIM Symposium is to provide a forum for public sector agencies to share learning points, explore collaborations in applied BIM R&D, and work towards a harmonisation of BIM standards within the Asia Pacific region.

BIM IPE WORKSHOP 2013

This visionary workshop for BIM, set to take place on 31 July 2013 with the theme of BIM for the Future, will see key local industry leaders in a panel discussion together with the members of IPE-BIM and government delegates.
INTERNATIONAL PANEL OF EXPERTS’ MEETING FOR BIM

Much progress has been made since the first International Panel of Experts’ Meeting for BIM (IPE-BIM) in year 2011. BCA will convene the second IPE-BIM meet from 30 July 2013 to 1 August 2013. It will look into updating the IPE on BIM progress in Singapore and seek the panel’s advice on transforming the local construction industry towards one of the world’s most technologically advanced sectors in the years to come.

Prominent Local Members

Dr. Norman Wu
MOH Holdings Pte Ltd

Mr. Lee Chuan Seng
Co-Chairman, IPE

International Experts

Dr. John Keung
Chairman, IPE

Mr. Larry Cheng
Housing Development Board

Prof. Stephen Lockley
(United Kingdom)

Mr. Øivind Rooth
(Norway)

Dr. Ing. Marcus Schreyer
(Germany)

Prof. Kim Inhan
(Korea)

Mr. Chng Pte Ltd
CEL

Mdm. Neo Seng Holdings Pte Ltd

Mr. Alan Lin, Co-ordinating Manager of Qingjian Precast Pte Ltd, briefed the CPSC on the importance of achieving a balance between moulding, casting and storage of precast components. He also showed how Qingjian’s production management system assisted in production planning and progress monitoring while enabling its clients to receive information on the production and delivery of precast components.

WITNESSING THE BEST OF TECHNOLOGY AT WORK

Three site visits allowed members of the Construction Productivity Steering Committee to gather tips on how various productive construction methods are being used today.

In May 2013, the Construction Productivity Steering Committee (CPSC) visited three sites, d’Leedon, Sculptura Ardmore and Qingjian’s precast yard to learn more about productive construction methods.

D’LEEDON

At d’Leedon, Building Information Modelling (BIM) helped integrate the construction value chain, which resulted in productivity improvements. Builder Woh Hup (Private) Limited used BIM to design precast moulds and coordinate architectural, structural and mechanical and electrical works before the construction phase. The use of BIM was also essential in overcoming the complexity and non-linear profiles of the buildings.

SCULPTURA ARDMORE

Pre-stressed and precast technologies were used for the Sculptura Ardmore project to construct cantilever swimming pools with an overhang of 15 metres. Dragages Singapore Pte Ltd was able to cut down on the number of workers required by more than 40%. Besides that, Dragages also used self-compacting concrete and the concrete rotary distributor to improve site productivity.

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 looking at simplifying rules and regulations by using public sector projects as a basis to stimulate demands for more innovative and productive methods of construction.
## Calendar of 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>4 Jul 2013, 19 Sep 2013, 7 Nov 2013, 3.00pm–5.00pm</td>
<td>Smart Builders Leadership Series</td>
<td>9 Maxwell Road, MND Complex Annex A 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>
<tr>
<td>5 Jul 2013, 2 Aug 2013, 6 Sept 2013 9.00am–12.00pm</td>
<td>BCA Productivity Clinic</td>
<td>5 Maxwell Road, #12-00, MND Complex, Tower Block, Singapore 069110 BCA</td>
<td></td>
</tr>
<tr>
<td>8 &amp; 9 Jul 2013 9.00am–5.00pm</td>
<td>2-Day BIM Planning Course (Building Developers and Facility Managers) (5th Run)</td>
<td>BCA Academy 200 Braddell Road Singapore 579700 BCA Academy</td>
<td></td>
</tr>
<tr>
<td>31 Jul &amp; 1 Aug 2013 9.00am–5.30pm</td>
<td>Build Smart Conference 2013</td>
<td>Max Atria @ Sing EXPO 1 Expo Drive Singapore, Singapore 486150 BCA Academy</td>
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<tr>
<td>15 Aug–1 Oct 2013 6.30pm–9.30pm (12 evenings)</td>
<td>Certificate in Construction Productivity Management (8th Run)</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>
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<tr>
<td>19, 22 &amp; 26 Aug 2013 6.30pm–9.30pm (3 evenings)</td>
<td>Workshop on Site Management of Precast Concrete (10th Run)</td>
<td>BCA Academy 200 Braddell Road Singapore 579700 BCA Academy</td>
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<tr>
<td>6 Sep 2013 9.00am–12.30pm</td>
<td>Code of Practice on Buildable Design (Re-run)</td>
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<tr>
<td>30 Sep &amp; 1 Oct 2013 9.00am–5.00pm</td>
<td>Workshop on Managing Project Teams Effectively (5th Run)</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

### Additional Courses

- 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 Pipefitting
  - SEC(K) in Structural Steel Fitting
  - SEC(K) in Interior Drywall Installation

### For Enquiries

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