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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Dear readers,

A very Happy New Year to all!

It was a busy but rewarding year for the Building and Construction Authority (BCA) and the built environment industry. For all the hard work and efforts that we have put in to deliver the best built environment for Singapore, let us give ourselves a pat on the back.

The quest towards greater construction productivity was no easy task. Many firms had to break away from conventional methods, re-engineer processes and reduce the need for foreign workers with the adoption of more advanced technology and equipment. All these take careful planning and, of course, an open mind for positive changes to take place in our industry.

I’m glad that many firms have shared the same vision and kick-started their productivity journeys. But for those who have yet to come on board, we are also actively reaching out to them through various industry outreach activities.

We have often highlighted the importance of using technology and equipment to improve work processes and productivity on site. But more importantly, we need to ensure that there is a competent pool of workforce at all levels that we can readily tap into to drive these initiatives. BCA is thus enhancing the BCA-Industry Built Environment Undergraduate Scholarship programme to attract more young talents to join the built environment industry.

We are also not forgetting to provide opportunities for existing practitioners – who, with their vast experiences, are assets to the industry – to upgrade themselves. For them, BCA has launched the Part-time Degree Sponsorship programme.

For the supervisory level, we are also extending the CoreTrade scheme to construction supervisors in recognition of their experience and contribution to the industry. In this issue, we interviewed two construction supervisors who have recently undergone the relevant training programmes at the BCA Academy to join the ranks of CoreTrade Supervisors. All these new enhancements are aimed at retaining and expanding the talent pool of the built environment workforce.

In the next few years, we can expect to see more changes in the industry. It is thus crucial for all of us in the industry to lead the transformation of our industry through continuous training and upgrading. The various schemes that BCA has in place are meant to help defray such upgrading cost for our companies. If you are not already tapping on the schemes, why not make it your New Year resolution to explore some upgrading courses for yourselves or your staff this year?

Take the first step, and be the one to take charge of your future, as well as your company’s, beginning today.

Dr John Keung
Chief Executive Officer

DECEMBER 2012 > BUILD SMART
**KICK-START PRODUCTIVITY WITH MECHC**

Discover how MechC helped two companies begin their productivity journeys with the purchase of useful work equipment

A Variety of Equipment for an Electrical Engineering Firm

Eliktrical began its business in 2004 carrying out electrical engineering works for both public and private projects in all types of developments. Prior to the purchase of the cable-pulling machine, workers had to physically pull the power cables from one point to another. This manual operation is time consuming and relies heavily on a number of workers. Now, with the cable-pulling machine, the required manpower is cut by almost half, time is shortened and site productivity has increased.

Eliktrical tapped into MechC funding to purchase two cable-pulling machines and one scissor lift. It also leased three scissor lifts and two boom lifts. Mr Kan Kok Weng, Director of Eliktrical, said, “We had to get some paperwork done and were unsure of how to go about getting approval for MechC funding. With the assistance and guidance from the helpful account managers, the application and claim process were much easier.”

<table>
<thead>
<tr>
<th>Builder:</th>
<th>Eliktrical Engineering Pte Ltd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business:</td>
<td>Mechanical and electrical engineering contractor</td>
</tr>
<tr>
<td>Equipment purchased with MechC:</td>
<td>- 2 cable-pulling machines  - 1 scissor lift</td>
</tr>
<tr>
<td>Equipment leased with MechC:</td>
<td>- 3 scissor lifts  - 2 boom lifts</td>
</tr>
<tr>
<td>Benefits:</td>
<td>- Reduced manpower  - Eliminated the need for scaffolding  - Increased productivity</td>
</tr>
</tbody>
</table>

Mr Kan Kok Weng, Director, Eliktrical Engineering Pte Ltd.
Directing Traffic Without Manpower

Hexagroup Pte Ltd specialises in civil engineering projects that involve road construction and drainage upgrading works. They were looking for a more productive method to temporarily direct traffic away from the work zones, where road or drainage construction works were in progress. They applied for the MechC funding and purchased 18 solar-powered portable traffic control units. These units replace manpower, which can then be redeployed to other work tasks.

Mr Lim Hong Leong, Project Director of Hexagroup, said, “Conventionally, two workers are required to carry the Stop and Go signs to direct traffic. With the portable traffic control set up at the desired location, there is no need for workers to physically carry the signs now.”

He added, “When we were in doubt on whether the equipment which we intended to purchase is supportable under MechC, the friendly account managers assisted us and clarified our queries promptly. This really helped speed up the whole process.” Mr Lim also shared that the time taken from application to disbursement of funds was reasonably fast.

Hexagroup believes that the MechC scheme is helpful and beneficial to SME companies like theirs. To have the initial equipment cost defrayed is a substantial financial burden lifted off for SMEs. The funding can also encourage companies to explore and identify productive technologies and equipment.

Currently, Hexagroup is exploring more purchases under MechC such as the crawler-mounted jaw crusher, which can speed up work processes. In addition, they expressed interest to apply for the Productivity Improvement Project (PIP) scheme to improve the work processes of their projects.

To find out more about MechC, please visit www.bca.gov.sg/MechC/mechc.html.

### Builder:
Hexagroup Private Limited

### Business:
Civil engineering contractor

### Equipment purchased with MechC:
- 18 portable traffic control units
- 1 concrete crusher

### Benefits:
- Reduced manpower
- Increased productivity
- Improved cost savings
- Faster work processes
以机械化奖励计划启动生产力

了解机械化奖励计划如何帮助两家公司购买提升生产力的工作设备以开启他们的生产力之旅

电机工程公司的多种设备

自2010年6月以来在建筑生产力和产能基金（CPCF）旗下所推出的奖励计划包括机械化奖励计划（MechC），都成功地让不少建筑公司在他们的项目中探讨并施行各种生产力科技与解决方案。Eliktrical Engineering私人有限公司就是其中一家受益于机械化奖励计划的建筑公司。

Eliktrical利用了机械化奖励计划的资金购买了两架电缆敷设机以及一架剪叉式升降机，也租用了三架剪叉式升降机和两架伸臂式搬运机。Eliktrical董事简国荣先生说：“我们必需办理一些手续，但不是很清楚该如何取得机械化奖励计划资金的批准。在热心的客户经理的帮助及指导下，申请以及申索程序变得更方便轻松。”

Eliktrical设立于2004年，专注于各种公共和私人建筑发展项目的电机工程工作。在购买电缆敷设机之前，工人必需亲手从一端把电缆敷设到另一端。这种人力运作非常耗时，并且必需依赖大量的工人。如今有了电缆敷设机，所需的工人数量已减少了一半，敷设时间因此被缩短，工地的生产力也因此大大地被提高了。

Eliktrical Engineering私人有限公司

生意范围：机械与电机工程承包商

通过机械化奖励计划所采购的器材：
- 2架电缆敷设机
- 1架剪叉式升降机

通过机械化奖励计划所租用的器材：
- 2架伸臂式搬运机
- 3架剪叉式升降机

效益：
- 减少人力资源
- 省却搭手脚架的需要
- 提高生产力

了解机械化奖励计划如何帮助两家公司购买具生产力的工作设备以开启他们的生产力之旅

Eliktrical Engineering私人有限公司
董事简国荣先生。
无需人力引导交通

义胜私人有限公司专注于道路建设及沟渠改良的工作。该公司一直在寻找如何在建设工作进行的当儿更有效地引导交通。他们因此利用机械化奖励计划获取资金购买了18台可携带的太阳能交通控制仪器。有了这些仪器来代替人力，工人便可被调派到其他的工作岗位。

义胜的项目主管林丰龙先生说：“通常，工人都需要拿着STOP和GO的指示牌来引导交通。现在，我们在有需要的地方放置交通控制仪器后，便不再需要工人亲手拿着指示牌了。”

他说：“起先，我们不清楚所要购买的设备是否能得到机械化奖励计划的支援。但友善的客户经理即时给予我们协助，帮助解答了我们的疑问。这让整个过程变得更加快速方便。”

义胜认为机械化奖励计划对他们有着非常大的帮助，也能让小型企业受益良多。能够支付初步的设备成本对小型企业来说，无疑是为他们大大地减轻了经济上的负担。该资金也鼓励企业探讨并找出具生产力的科技与设备。

目前，义胜正在斟酌在机械化奖励计划下购买更多可加快工作过程的设备，例如履带式破碎机等。此外，他们也表示有意申请生产力改进计划（PIP）以改进他们的项目工作过程。

欲了解更多有关机械化奖励计划的详情，请浏览www.bca.gov.sg/MechC/mechc.html。

### 建筑商:
义胜私人有限公司

### 生意范围:
土木工程承建商

### 通过机械化奖励计划所采购的器材:
- 18台可携带交通控制仪器
- 1台混凝土破碎机

### 效益:
- 减少人力资源
- 提高生产力
- 提高成本节约
- 加快工作过程
The BCA-Industry Built Environment Undergraduate Scholarship programme offers more with its new enhancements

To offer young talents an opportunity to take up a career in the built environment, the Building and Construction Authority (BCA) and leading firms in the industry have been providing scholarships through the BCA-Industry Built Environment Undergraduate Scholarship programme. This joint collaboration, which began in 1993, saw more than 100 participating firms and up to 372 scholarships awarded.

Come 2013, the programme will see two major enhancements to attract and retain personnel in the industry and build up a wider talent pool at the professional level. For full-time built environment undergraduate studies in local universities, the scholarship sum will be raised. Meanwhile, the programme will also be extended to provide part-time degree sponsorships for local employees of participating firms who wish to further their studies.

Check out the overview of enhancements to the Scholarship programme, which will take effect from 2013.

<table>
<thead>
<tr>
<th>Programme</th>
<th>Before Enhancements</th>
<th>After Enhancements (effective from 2013)</th>
<th>Scholarship sum per scholar</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BCA's share</td>
<td>Sponsor's share</td>
<td>BCA's share</td>
</tr>
<tr>
<td>Full-time Degree Scholarship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local scholar (i.e. Singaporeans and SPRs)</td>
<td>$7,000</td>
<td>$7,000</td>
<td>$12,000</td>
</tr>
<tr>
<td>Foreign scholar in engineering courses only</td>
<td>$3,000</td>
<td>$7,000</td>
<td>$6,000</td>
</tr>
<tr>
<td>(Malaysians only)</td>
<td>(Malaysians only)</td>
<td>(Malaysians only)</td>
<td></td>
</tr>
<tr>
<td>Part-time Degree Sponsorship (NEW)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local employee (i.e. Singaporeans and SPRs)</td>
<td>-</td>
<td>-</td>
<td>70% of course fee</td>
</tr>
</tbody>
</table>
New: Part-time Degree Sponsorship

The new Part-time Degree Sponsorship programme aims to encourage local employees of firms, who are diploma holders, to upgrade and advance their careers. Applicants accepted into the part-time built environment courses at the National University of Singapore (NUS), Nanyang Technological University (NTU) and SIM University (UniSIM) are eligible for the Ministry of Education (MOE) subsidies of 55% for Singaporeans and 20% for Singapore Permanent Residents (terms apply). BCA and sponsor firms will co-fund the remaining course fees after the MOE subsidies.

Application Process for Part-time Degree Sponsorship Programme

BCA checks Employee’s Eligibility:
• Accepted by University
• Enrolled in BCA’s approved list of Built Environment courses
• Supported by firm

Payment of Course Fees: Firm to pay upfront & seek reimbursement from BCA

Joint sponsorship (Local existing employee)
1. Government
70% of course fees
2. Sponsor Firm
30% of course fees

Study at NUS/NTU/UniSIM

Degree Graduate (2-year bond to sponsor firm)

Full-time built environment courses at NUS, NTU and Singapore University of Technology and Design (SUTD)
• Architecture
• Civil Engineering
• Electrical Engineering
• Environmental Engineering
• Mechanical Engineering
• Project & Facilities Management
• Real Estate

Part-time built environment courses at NUS, NTU, UniSIM (in collaboration with BCA Academy/ Singapore Polytechnic)
• Building & Project Management
• Electrical and Electronic Engineering
• Facilities & Events Management
• Mechanical Engineering

For more details on:
• Undergraduate Scholarship Programme (full-time degree), please visit http://www.bca.gov.sg/workforce/bes.html.
• Undergraduate Sponsorship Programme (part-time degree), please visit http://www.bca.gov.sg/workforce/besp.html.

For clarification or assistance on the programmes, please contact Ms Rachel Leu (tel: 6325 5184 or email: rachel_leu@bca.gov.sg) or Ms Fern Zheng (tel: 6325 5924 or email: fern_zheng@bca.gov.sg).
MORE PMETS TO GET SKILLS BOOSTING
Increased funding will be offered under the WTU scheme for PMET courses

To encourage the upgrading of professional, managerial, executive & technical (PMET) personnel, the Workforce Training and Upgrading (WTU) scheme has been enhanced for PMET courses that are directly related to productivity.

The enhancements, which have taken effect from 1 October 2012, will assist companies to defray a greater proportion of the cost involved in training and upgrading their PMET personnel. The WTU scheme is administered by BCA under the S$250 million Construction Productivity and Capability Fund (CPCF).

Enhancements to the WTU Scheme for PMET Courses

<table>
<thead>
<tr>
<th>PMET Category</th>
<th>Previous Funding Level</th>
<th>Enhanced Funding Level (subject to participants meeting additional requirements)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local PMET</td>
<td>Up to 50%</td>
<td>Up to 70%</td>
</tr>
<tr>
<td>Foreign PMET (with minimum of 2 years construction experience in Singapore)</td>
<td>Not Applicable</td>
<td>Up to 40%</td>
</tr>
</tbody>
</table>

How WTU Funding Works

**LOCAL**

Previous Flow (Up to 50%)

Submit online WTU application before course commencement. Applicant firm pays 50% of course fee upfront.

Participants attend course.

Remaining 50% course fee disbursed to Training Provider upon participants meeting qualifying criteria.

Participants must still be in the sponsoring firm 3 months after course completion.

Enhanced Flow (up to 70%) (from 1 October 2012)

Submit online WTU application before course commencement. Applicant firm pays 50% of course fee upfront.

Participants attend course.

Remaining 50% course fee disbursed to Training Provider upon participants meeting qualifying criteria.

Participants must still be in the sponsoring firm 3 months after course completion.

Participants submit project report.

Additional 20% funds automatically reimbursed to Applicant Firm.

**FOREIGN**

Enhanced Flow (up to 40%) (from 1 October 2012)

Submit online WTU application before course commencement. Pay full course fee.

Participants attend course.

Participants must still be in the sponsoring firm 3 months after course completion.

Participants submit project report.

Funds automatically disbursed to Applicant Firm.
Qualifying Criteria

To qualify for the enhanced funding, participants will have to meet the additional criteria stated below. However, if participants do not meet the additional criteria, locals will still enjoy the previous 50% funding level, while foreigners will not be eligible for any funding.

<table>
<thead>
<tr>
<th>List of Qualifying Criteria</th>
<th>Current Funding Level (Locals only)</th>
<th>Enhanced Funding Level (Locals)</th>
<th>Enhanced Funding Level (Foreigners)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possess at least 2 years of construction experience in Singapore</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
<td>√</td>
</tr>
<tr>
<td>Achieve at least 75% attendance rate</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Sat for assessments</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Pass the assessments</td>
<td>Not Applicable</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Complete course evaluation form</td>
<td>Not Applicable</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Submit project report 3 months after course completion</td>
<td>Not Applicable</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Remain in the sponsoring firm for at least 3 months</td>
<td>Not Applicable</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>


Information on PMET courses at the BCA Academy can be found at [http://www.bcaa.edu.sg](http://www.bcaa.edu.sg).

For clarification or assistance on the enhanced WTU scheme, please contact Mr Liu Deren (tel: 6325 5094) or Ms Sharon Tan (tel: 6325 2096) or email bca_wtu@bca.gov.sg.
PRODUCTIVITY LESSONS FROM CUBE 8

Acting Minister for Manpower Tan Chuan-Jin visited Cube 8, a condominium project, and shared what he learnt from the building process.

SECRETARY-GENERAL Lim Swee Say’s comments that workforce growth will slow in the years to come featured prominently in the morning newspapers. I agree with him. We cannot continue to grow the local workforce size as we have done over the years, at some 3% per annum. In fact, the Economic Strategies Committee’s report said we would need to look at half of that growth, i.e. some 1.5% per annum, going forward. At the same time, foreign workforce growth will slow – as we calibrate and prevent an over-generation of jobs that would then lead to an unsustainable outcome for our society and infrastructure as a whole.

This is not an issue of whether it is good or bad. We are at a stage of development where we need to move forward on a different footing. Opportunities remain even as the global economy remains uncertain. It is therefore a chance for us to transform our economy to a productivity-led one. Our labour market will remain tight for some time to come. Even as we re-structure, we need to ensure that employment growth is moderated at a sustainable pace, and to keep a close watch on our unemployment rate. Manpower will move to businesses that are more competitive. Firms who truly embrace the productivity mindset and innovate will also come out stronger as a whole.

So just how can companies embrace and start their own productivity journeys? This morning, I visited the Cube 8 construction site to see for myself what is possible. Our level of productivity in construction today is just over a third (35%) of the level seen in Japan, an international leader in this field. We must do better.

Cube 8 is being developed by City Developments Limited (CDL) with Dragages Singapore Pte Ltd as the main builder. The Cube 8 project is a good example of how buildable designs can help to improve productivity. Starting upstream, they used Building Information Model (BIM) technology in the design phase – this makes a tremendous amount of difference. This is fast catching on in the industry and BCA strongly promotes it.

They actively use prefabricated bathroom units and dry walls. While these precast and prefab components cost more, they utilise fewer workers and help builders to complete their projects earlier. I understand that the material cost (per m²) for dry wall and brick wall construction is about $50 to $60 and $45 to $55 respectively. However, as construction using drywall is at least two times faster compared to brick walls, the overall cost does not differ too much between the two wall systems. With more dry wall suppliers coming into the market, the cost of dry walling is becoming more competitive. Many contractors complain that the worksite is too cramped to do prefab work. Here, we can see how the company carries that out on site. It is all about having progressive mindsets. Unfortunately, not all developers and contractors are prepared to try, yet major players have an even bigger responsibility to do so.

Dragages worked closely with construction sub-contractors like Stonrich Pte Ltd to ensure knowledge transfers and to eventually help these companies achieve better work processes. Stonrich supplies and installs high quality stone products such as marble and granite in buildings. Thanks to Dragages having an in-house stone specialist who was able to advise them on the specifications of marbles needed, they were then able to prefabricate the marbles in factories and
manager with Dragages. She shared with me how she liked that the management of the company placed great emphasis on work safety and promotes a healthy workplace.

A strong focus on workplace safety and health (WSH) prevents injuries, saves lives and reduces business downtime arising from work accidents. In the first half of this year, 265,057 man-days were lost to WSH incidents. This is a significant loss of productivity for the companies involved. By preventing such accidents in the first place, companies will be saving lives and also doing their part for productivity at the same time.

The Government will help. One way is through the Construction Productivity and Capability Fund (CPCF), of which approximately $72 million out of the $250 million have been committed to date. Currently, more than 2,000 firms have benefited from the CPCF. BCA will continue to conduct one-to-one Productivity Clinics to advise firms, big and small, on productivity issues and incentive schemes available.

I am very happy to see bigger companies taking the initiative to be more productive. I am also happy that some developers are also setting the direction for all its contractors in terms of higher productivity, quality, sustainability and safety standards.

What we now need is for more to come on board and grow a more forward-looking mindset!

Acting Minister for Manpower Tan Chuan-Jin

Mr Jon Skipworth Button, Consultant, Gammon Pte Ltd, noted how fast things are changing in the U.K. “The use of factory-made prefabricated service modules to replace piecemeal erection of individual mechanical and electrical (M&E) elements on site now appear to be the solution of choice in the U.K. This is especially so for large and complex commercial, retail, hospital and industrial developments,” said Mr Button.

He added, “During our visit, we met several main contractors and specialist M&E contractors who have one or more factories making horizontal or vertical service modules. These modules are completed in advance, tested and delivered to sites for immediate erection. All these are made in the factory at floor level, in a highly productive and safe environment.”

Mr Button observed that a key aspect of this speedy and productive process is the detailed manufacturing drawings, which are prepared using Building Information Modelling (BIM). Clients and consultants can pre-empt issues at the early design stage and the result is a better product that is fabricated with significantly less manpower. The entire process is also safer.

“All in all, this entire trip was an eye opener and left us with plenty of food for thought and ideas to shake up the local industry,” said Mr Button.

To help the industry keep abreast of developments in construction technologies and systems, BCA has been organising productivity learning journeys to progressive cities around the world.

On 30 September 2012, a delegation of 15 participants comprising developers, main contractors, subcontractors, government representatives and a council member from the Singapore Contractors Association Limited (SCAL) visited the United Kingdom (U.K.). The focus was on exploring innovative building materials, mechanical and electrical systems and off-site manufacturing. It was an eye-opening experience for the team as they witnessed technologies that have yet to be implemented in Singapore.

During the trip, the delegates visited four factories, three project sites, an innovation centre, a research and information association and Lend Lease’s U.K. office. Mr Chua Hock Tong, Chief Executive Officer of UE E&C Ltd and founder of Greatearth Construction Pte Ltd, was particularly impressed with the open concept and green layout of the Lend Lease office. In the office, each staff is surrounded by up to eight potted plants. He said, “The open office space facilitates the sharing of knowledge among employees and because it’s so green, staff’s health and well-being are enhanced.”

Each staff is surrounded by up to eight potted plants in the Lend Lease office.

An off-site mechanical, electrical and plumbing (MEP) manufacturing factory of SES Prism.

HAPPENINGS
“It was interesting to see how having M&E prefabrication off-site helps reduce reliance on site labour. Perhaps, together with our consultants, we can learn, adapt and integrate some form of M&E prefabricated works into our local construction works.”

– Mr Khoo Beng Hwee, Executive Director, Kimly Construction Pte Ltd

“This trip has helped me to establish new overseas contacts who are so generous and gracious in sharing their past experiences. My personal favourite was the visit to the Building Services Research and Information Association, where I got to learn about various new methodologies and technologies. I would like to thank BCA for organising a well-planned trip.”

– Mr Roland Chia Swee Peng, Operation Director, Zenith E&C Pte Ltd

“The learning journey gave us an opportunity to see first hand cutting-edge developments in a regeneration project, a prefabricated solid engineered wood housing scheme and also various examples of prefabricated modularised M&E systems. Many of these ideas may be readily adaptable for use in Southeast Asia and Singapore.”

– Mr Jon Skipworth Button, Consultant, Gammon Pte Ltd

Companies Visited

<table>
<thead>
<tr>
<th>Builders</th>
<th>&gt; Lend Lease</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt; Balfour Beatty Construction</td>
</tr>
<tr>
<td>Manufacturers</td>
<td>&gt; Gripple</td>
</tr>
<tr>
<td></td>
<td>&gt; SES Prism</td>
</tr>
<tr>
<td></td>
<td>&gt; Pipe Center</td>
</tr>
<tr>
<td>Consultancy Institution</td>
<td>&gt; Timberfirst</td>
</tr>
<tr>
<td></td>
<td>&gt; The Building Services Research and Information Association (BSRIA)</td>
</tr>
</tbody>
</table>

Prefabricated service modules in a factory setting.

Key Productivity Observations

Lend Lease HQ office in London

> Open office concept promotes trust and interaction
> Positive demonstration of caring employer results in healthier workers
> Theoretically improves workers’ productivity

A Cross Laminated Timber (CLT) project at Bowling Green Street

> Use of CLT for structural members reduces construction duration
> Off-site manufacturing
> Lightweight system improves speed of installation

Gripple factory at Old West Gun Works

> Gripple wire rope system improves installation for MEP up to 6 times faster
> Reduces steel usage by up to 95%

SES Prism factory at York

> Off-site manufacturing greatly improves productivity and quality
> BIM aids modular construction at greater speed and accuracy

BSRIA office at Bracknell Berkshire

> Membership to BSRIA serves as a platform for learning and sharing innovative products, construction methodologies and best practices
Construction supervisors are a vital link in the construction value chain. In April 2012, a new registration class, CoreTrade Supervisors, was introduced by the Building and Construction Authority (BCA) under the CoreTrade scheme to recognise this key group of construction personnel.

This enhancement to the CoreTrade scheme extends the career progression path of CoreTrade personnel by allowing CoreTrade Tradesmen to progress to Trade Foremen and ultimately to Supervisors. Industry personnel with acceptable qualifications and relevant experience can join the ranks of CoreTrade Supervisors upon their completion of the related training programmes at the BCA Academy.

Among those who have qualified as CoreTrade Supervisors is Mr Ramanathan Balasubramanian, a Singaporean from Hytech Builders Pte Ltd who has been in the industry for 15 years. He shared that the qualification has made him more confident at work.

“The training, which covers supervision and co-ordination skills and knowledge of architectural trades, has equipped me with the relevant knowledge to carry out my supervisory roles more effectively. Being a registered Architectural CoreTrade Supervisor has also provided me with formal recognition for my supervisory skills and experience in the construction industry,” said Mr Balasubramanian.

Another CoreTrade Supervisor is Mr Gao Hong Ming from Yangzijiang International (S) Pte Ltd. He noted that the CoreTrade Supervisor training course has provided him with useful insights on how to increase the efficiency and productivity of construction work on site.

“The knowledge and skills gained from the CoreTrade Supervisor training course are very useful for my job. I can also share what I’ve learnt with my colleagues,” he said.

For more information on the CoreTrade scheme, please visit www.bca.gov.sg/CoreTrade/coretrade_introduction.html or scan the CoreTrade QR code.
Efficient quality management was key topic at this year’s BCA-REDAS Quality and Productivity Seminar

To raise awareness of construction quality among builders, developers and construction professionals in the industry, the BCA-REDAS Quality and Productivity Seminar was held on 31 October 2012 at the BCA Academy. The annual event, co-organised by the Building and Construction Authority (BCA) and the Real Estate Developers’ Association of Singapore (REDAS), saw close to 260 participants attending this year.

Since 2004, the seminar has been offering updates on quality and productivity initiatives and provides a platform to showcase new technologies, materials and best quality practices in projects. The key message this year was on the important link between quality, productivity and efficient quality management, and how a focus on these aspects can collectively help firms better improve productivity without compromising quality.

WHERE QUALITY AND PRODUCTIVITY MEET

Highlights at the BCA-REDAS Quality and Productivity Seminar

- **New: the CONQUAS App**
  Showcased at the seminar was the CONQUAS App, BCA’s first smart phone application. The app features the Quality Mark Calculator, quality-related publications and other friendly links to help industry players tap into readily available tools to improve project quality and productivity.

- **Improvements in the CONQUAS® 8th Edition**
  Mr Rajendran Ramamoorthy from BCA presented improvements in the newly launched CONQUAS® 8th Edition. The challenge and critical success factor of CONQUAS® is to keep up with constant changes and improvements in construction processes and technologies. A detailed analysis using both qualitative and quantitative techniques was adopted in developing the CONQUAS® 8th Edition. The improvements aim to drive the construction industry towards better build quality and support BCA’s drive to use less labour-intensive design and material choices.

- **Showcase: World’s Thinnest and Largest Porcelain Stoneware Slab**
  Mr Messori Matteo, East Sales Export Manager from Laminam Sp.A, described how the on-site installation of the world’s thinnest and largest porcelain stoneware slab is a clean, accurate, simple and fast process, which can result in shorter construction time and higher productivity and quality.

- **Insights into Precast Concrete Technology**
  Mr Daniel Teh, Planning Manager from Shimizu Corporation, shared his insights on how precast concrete technology is fast gaining popularity as a key method to improving productivity and quality in the construction industry.

- **Strategies from Frasers Centrepoint**
  Mr Cheang Kok Kheong, CEO of Frasers Centrepoint Ltd (FCL), shared Frasers Centrepoint’s integrated property approach through its three strategic thrusts in aligning its company’s processes with the wants and needs of its customers. With this approach, FCL is able to mitigate design risk, improve labour efficiency, reduce construction risk and cost with an efficient work process, and improve quality and workmanship with clearer communication through its Project Management Programme.

- **Achieving Quality Off-form Concrete Finishes**
  Mr Edwin Lee, Senior Project Manager from Tiong Seng Contractors Pte Ltd, presented numerous practical tips on achieving good off-form concrete finishes to help builders boost quality and productivity.
ADVOCATING CHAMPIONS IN PRODUCTIVITY

Construction Productivity Awards 2013 is now open for nominations

Organised by the Building and Construction Authority (BCA), the annual Construction Productivity Awards (CPA) aims to recognise outstanding built-environment professionals, consultants and builders for their achievements in the construction productivity drive at the project and firm levels.

The CPA categories that are open for nominations are:

**CPA – Projects:**
Awarded to project teams that have demonstrated productivity in their construction development projects from the design to the end of the construction stage.

**CPA – Advocates:**
Awarded to organisations (developers, consultants, as well as main contractors and subcontractors) that have demonstrated efforts in initiating high productivity solutions towards design, construction methods, processes and/or technologies adopted and have translated these solutions into significant productivity impact in their projects.

All nominations must be submitted to BCA by 4 February 2013. For more information on CPA, please visit [http://www.bca.gov.sg/Awards/cpa/cpa.html](http://www.bca.gov.sg/Awards/cpa/cpa.html).

## CALENDAR OF EVENTS

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Event Name / Venue / Organiser</th>
<th>Contact Person &amp; Details</th>
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</thead>
<tbody>
<tr>
<td>4 Jan 2013, 1 Feb 2013, 1 Mar 2013 09:00–12:00</td>
<td><strong>BCA Productivity Clinic</strong> 5 Maxwell Road, #12-02, MND Complex, Tower Block, Singapore 069110</td>
<td>Ms Ezrin Raof TEL: 6325 5093 EMAIL: <a href="mailto:ezrin_raof@bca.gov.sg">ezrin_raof@bca.gov.sg</a></td>
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<tr>
<td>8 Jan–28 Feb 2013 18:30–21:30 (12 evenings)</td>
<td><strong>Certificate in Construction Productivity Management</strong></td>
<td>Marketing &amp; Business Development Unit TEL: 6248 9843 / 824 EMAIL: <a href="mailto:bca_academy@bca.gov.sg">bca_academy@bca.gov.sg</a></td>
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<tr>
<td>16 Jan 2013 9:00–17:00</td>
<td><strong>BCA-REDAS Construction and Property Prospects 2013</strong> Orchard Hotel</td>
<td>Marketing &amp; Business Development Unit TEL: 6248 9843 / 824 EMAIL: <a href="mailto:bca_academy@bca.gov.sg">bca_academy@bca.gov.sg</a></td>
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<tr>
<td>16 Jan 2013 (Wed) 17 Apr 2013 (Wed)</td>
<td><strong>ACES-BCAA-Autodesk Structural and MEP BIM Hands-On Workshops</strong> BCA Academy Block B, Level 2, IT Lab 3 200 Braddell Road Singapore 579700</td>
<td>Ms Soon Lay Kuan TEL: 6325 1102 EMAIL: <a href="mailto:soon_lay_kuan@bca.gov.sg">soon_lay_kuan@bca.gov.sg</a></td>
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<tr>
<td>25 Jan 2013 (Fri) 27 Feb 2013 (Wed) 9.30am–5.30pm</td>
<td><strong>1-Day Architectural BIM e-Submission Template Hands-On Workshop for Revit Users (FREE)</strong> BCA Academy Block B, Level 2, IT Lab 3 200 Braddell Road Singapore 579700</td>
<td>Ms Soon Lay Kuan TEL: 6325 1102 EMAIL: <a href="mailto:soon_lay_kuan@bca.gov.sg">soon_lay_kuan@bca.gov.sg</a></td>
</tr>
<tr>
<td>25–28 Feb 2013 9:00–18:00</td>
<td><strong>Certification Course in BIM Management</strong> BCA Academy 200 Braddell Road Singapore 579700</td>
<td>Marketing &amp; Business Development Unit TEL: 6248 9843 / 824 EMAIL: <a href="mailto:bca_academy@bca.gov.sg">bca_academy@bca.gov.sg</a></td>
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RIDE ON THE PRODUCTIVITY WAVE
BY SIGNING UP FOR THESE COURSES

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)
> Structural Steel Supervision
> Reinforced Concrete Supervision
> Plumbing Technology
> Electrical Technology

Certificate courses (Tradesmen / Foremen)
> Builders Cert in Plumbing and Pipefitting
> SEC(K) in Precast Concrete Components Erection
> SEC(K) in Structural Steel Fitting
> SEC(K) in Interior Drywall Installation
> System Formwork Training
> Mechanical Elevated Work Platform

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 50% ($100,000) of equipment cost

PRODUCTIVITY IMPROVEMENT PROJECT (PIP) SCHEME
Provides assistance to companies to defray up to 70% ($1 million) 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.

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