



pillars

2007 Issue 03

**BCA Awards 2007:
best in building
Green Test Bed
Introducing...Eco-concrete**

Building and Construction  Authority

We shape a **safe, high quality, sustainable** and **friendly** built environment

Universal Design Awards - New!

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Best in Building



The annual BCA Awards honoured the best in the industry once again. At this year's award ceremony held on 10 May, guest-of-honour Mr Mah Bow Tan, Minister for National Development, congratulated winners of the 65 awards. They were singled out for their outstanding accomplishments in universal design, environmental sustainability, buildable design and quality. Mr Mah also urged the industry to diversify its supply sources away from sand and granite by switching to sustainable construction as much as possible.

Pillars pays tribute to the winners of the BCA Awards 2007 and features the journey of some winners towards excellence in the industry.



Congratulations to the winners of **BCA Awards 2007**

Green Mark Awards

Project	Building Owner / Developer
Green Mark Platinum	
City Square Mall	City Developments Limited
Eco-Precinct at Punggol	Housing & Development Board
The Oceanfront @ Sentosa Cove	City Developments Limited & TID Pte Ltd JV
Xilinx Asia Pacific Headquarters	Xilinx Asia Pacific Pte Ltd
Green Mark Gold^{Plus}	
Buckley 18	City Developments Limited / Hong Realty (Pte) Ltd
People's Association Headquarters	People's Association
Prototype Glasshouses	Gardens by the Bay, National Parks Board
The Seafront on Meyer	CRL Realty Pte Ltd
Green Mark Gold	
Botannia	West Coast Joint Venture – City Developments Limited / CapitaLand Residential Singapore
Chek Jawa Wetlands	National Parks Board
Environment Building	Ministry of the Environment and Water Resources
HDB Hub	Housing & Development Board
Marina Bay Residences	Marina Bay Residences Pte Ltd
One Jervois	Frasers Centrepoint Limited
Orchard Turn Retail Mall	CapitaLand Limited, Sun Hung Kai Properties Limited
Plaza Singapura	CapitaMall Trust
The Metropolitan	Tanglin Residential Pte Ltd
The Orchard Residences	CapitaLand Limited, Sun Hung Kai Properties Limited
Green Mark Award	
4/6 Ontario Avenue	Asia Polyurethane Manufacturing Pte Ltd
Ascott Raffles Place	Ascott Raffles Place Pte Ltd
HSBC Building	HSBC Institutional Trust Services (S) Limited as Trustee of CapitaCommercial Trust
One Leicester	Frasers Centrepoint Limited
Raffles City Singapore	HSBC Institutional Trust Services as Trustee-Manager of RCS Trust
Singapore Flyer	Singapore Flyer Pte Ltd
The Quartz	GuocoLand Group
UbiPlex 1	Housing & Development Board
Wang Jing Mall, Beijing	CapitaRetail China Trust

Best Buildable Design Awards

Project	Client	Architectural Consultant [Collaborating Consultant]	Structural Consultant [Collaborating Consultant]	Builder
Award				
Butterworth 33	City Developments Limited	H.U.A.Y Architects	LSW Consulting Engineers	Juho Construction Pte Ltd
Ikea Tampines	IKANO Pte Ltd	DSA Architects	PEC Consultant	Poh Lian Construction Pte Ltd (Alternative Design)
Leonie Studio	GuocoLand Limited	RSP Architects Planners & Engineers (Pte) Ltd	Chan Chee Wah Consultants	Kimly Construction Pte Ltd
Queenstown Redevelopment Contract 14	Housing & Development Board	Housing & Development Board [Surbana International Consultants Pte Ltd]	Housing & Development Board [Surbana International Consultants Pte Ltd]	Straits Construction Co. (Pte) Ltd
Sengkang Neighbourhood 2 Contract 32	Housing & Development Board	Surbana International Consultants Pte Ltd	Surbana International Consultants Pte Ltd	Welltech Construction Pte Ltd / Chip Hup Hup Kee Construction Pte Ltd - JV
Supreme Court Building	Supreme Court of Singapore	CPG Consultants Pte Ltd [Foster and Partners]	CPG Consultants Pte Ltd	IRE-Sato Kogyo Joint Venture
The Pier @ Robertson	City Developments Limited	Axis Architects Planners	LSW Consulting Engineers	Sumitomo Mitsui Construction Co Ltd (Design and Build)
Merit				
de Royale	Hoi Hup Holdings Pte Ltd	JGP Architecture (S) Pte Ltd	LBW Consultants LLP	Straits Construction Co. (Pte) Ltd (Design and Build)
Kerrisdale Condominium	Beatty Holdings Pte Ltd	Design Link Architects	HCE Engineers Partnership	Kimly Construction Pte Ltd (Design and Build)
Marina South Pier	Maritime and Port Authority of Singapore	Surbana International Consultants Pte Ltd	Surbana International Consultants Pte Ltd	Toa Corporation ANDO Singapore Private Limited
Marine Terrace Precinct MUP 18A	Housing & Development Board	Surbana International Consultants Pte Ltd	Surbana International Consultants Pte Ltd	Ho Lee Construction Pte Ltd
Mimosa Terrace Phase 5	Singapore United Estates (Pte) Ltd	RSP Architects Planners & Engineers (Pte) Ltd	RSP Architects Planners & Engineers (Pte) Ltd	Seah Construction Pte Ltd

Congratulations to the winners of BCA Awards 2007

Universal Design Awards for the Built Environment

Type of Award	Project (Category)	Owner	Architects
Gold	Ikea Tampines	IKANO Pte Ltd	DSA Architects T J Ong Architect
Silver	New National Library	National Library Board	DP Architects Pte Ltd T R Hamzah and Yeang
Bronze	Harbourfront MRT Station	Land Transport Authority	Architects 61 Pte Ltd
Bronze	Home @ Hong San	Ministry of Community Development, Youth and Sports	3P Architects
Bronze	Lot 1 Shoppers' Mall	CapitaLand Retail Limited	Architects 61 Pte Ltd
Bronze	Parakou Building	Parakou Investment Holdings Pte Ltd	Aedas Pte Ltd
Bronze	The Pier @ Robertson	City Developments Limited	Axis Architects Planners

Construction Excellence Awards

Project	Builder
Award	
DTSS - Upper Thomson Link Sewers	Ed. Züblin AG, Singapore Branch
Home Team Academy	Tiong Seng Contractors Pte Ltd
National Library Building	Nishimatsu - Lum Chang JV
Swimming Pools, Sports Facilities And Basement Halls at United World College of South East Asia	Wee Hur Construction Pte Ltd
The EsParis	ANDO Singapore Private Limited
WhiteWater Executive Condominium	Woh Hup (Pte) Ltd
Merit	
Building Works at Bukit Merah Redevelopment Contract 29	Evan Lim & Co Pte. Ltd.
Casabella Condominium	Lum Chang Building Contractors Pte Ltd
Deep Tunnel Sewerage System (DTSS) - Kim Chuan Link Sewer Contract 1	Tiong Seng - Dong-A Consortium
Deep Tunnel Sewerage System (DTSS) - Seletar Link Sewer Contract 1	Tiong Seng Contractors Pte Ltd
Extension of Queensway to Ayer Rajar Expressway (Phase 2)	Sato Kogyo (S) Pte Ltd
Jurong Pier Flyover	Tiong Seng Contractors Pte Ltd
Monterey Park Condominium	Woh Hup (Pte) Ltd
Queenstown Redevelopment Contract 14	Straits Construction Co. (Pte) Ltd
Savannah CondoPark	Dragages Singapore Pte Ltd
SIA Group Sports Club Recreational Clubhouse	Kwan Yong Construction Pte Ltd
The Shelford	Tiong Aik Construction Pte Ltd
The Waterina	Tiong Aik Construction Pte Ltd
Upgrading of Existing Ping Yi Sec Sch at Chai Chee Street	Teambuild Construction Pte Ltd

Universal Design Awards



Promoting a built environment that caters to the needs of all groups of people, BCA introduced the Universal Design Award to recognise good practices and special efforts taken in implementing universal design features. These universal design features will ensure that everyone – not just the able-bodied – will be able to enjoy an environment that provides safety, comfort and convenience.

The inaugural Universal Design Award was handed out to seven deserving winners at this year's BCA Awards Ceremony, with IKEA Tampines clinching the top Gold Award. The Award – organised by BCA jointly with the Singapore Institute of Architects and the Handicaps Welfare Association – rates buildings on six criteria, namely equitable use, friendliness, facilities, connectivity to public facilities, protection and safety, and aesthetics.

Through the introduction of this award, BCA hopes to encourage more parties in the industry to join in and create a truly barrier-free and friendly built environment for an inclusive society.

Universal Design Awards New!

Examples of Winning Features

Designated pedestrian lanes in carpark



Carpark lots for families with prams



Carpark visible and easily accessible from the lobby



Information board on availability of carpark lots



Ample, visible and easily understood signage



Clear directional signage leading to other destinations



Comfortable nursing cum diaper changing room



Provision of diaper changing station in accessible toilet



Tilted mirror in accessible toilet



Clothes hook in accessible toilet at useable height



Accessible information counter



Wide aisles



Warning tactile indicators at top and bottom of stairs



Non-slip floor tiles to prevent accidents



Inter-connectivity to other buildings



First Green Mark Platinum for a Private Industrial Building



At a BCA Seminar 'Leading Lights in the Realm of Sustainability' on 25 June 2007, Bovis Lend Lease shared its experience in helping Xilinx Asia Pacific Headquarters become the first private industrial building to win the Green Mark Platinum Award.



Bovis Lend Lease was tasked to incorporate sustainable elements to the design and construction of Xilinx's new Asia Pacific headquarters at Singapore's Changi Business Park. Xilinx is one of the largest fabless semiconductor companies in the world and is the worldwide leader in programmable logic devices, with 50 per cent of the global market share in 2006.

Fortunately, Bovis Lend Lease was no stranger to designing green buildings. Since attaining the first Sustainable Energy Development Authority 5-star rating award for its headquarters in Sydney, the company had been repeating its successes not only for its own facilities but also for those of their clients.

The resulting green features implemented at Xilinx Asia Pacific Headquarters were impressive. Although they increased construction investment by 1.1%, they are expected to reap \$500,000 in savings for Xilinx each year.

Lighting Management

The arrangement of sectionalised energy-saving lightings was computerised to enable alternating lighting depending on the light flow in the building. Assessing the brightness of the environment, the pre-programmed lighting management system manages the number of lights used, such as eliminating the use of lights in less required sections. Since lighting is centrally managed and pre-programmed, there are no light switches in the building.

Recycled Chips for Signage

Signages on every level of the building were all fabricated from discarded chips from Xilinx's production line, thus reducing waste generation.

Recycling of Condensate Water for Landscape Irrigation

Condensation results from the use of air-conditioning. The water that is generated is normally channelled out of the building as waste water. In Xilinx's facility, however, condensate water is collected and recycled for landscape irrigation.

Integration of Building Management and IP Camera System through IT Network

Conventionally, all CCTV system and monitoring devices require a dedicated home run to the central system, which is located at the Fire Fighting Command Centre. However, the building was designed to run all the control cables to the nearest network switches in the communication rooms instead and to feedback signals to the central system via the Xilinx IT network. This resulted in an estimated savings of 40% of cable and support system used.

Pre-Cooled AHUs (incorporated with Heat Pipes) with Desiccant Dehumidifier to Control Humidity

The main factor causing humidity to rise is the outdoor air supply serving the air handling units on different floors. Creative design was employed to maintain and control the humidity by implementing pre-cooled AHU with heat pipes to bring in the outdoor air. This design

reduced the size of the desiccant dehumidifier needed for humidity control and decreased the operating period resulting in remarkable energy savings.

Ductless Fan System for Basement Car Park System

Most basement car park systems in Singapore utilise the conventional ducted system which requires galvanised steel material for ventilation duct work. Correspondingly, structural work needs to increase to meet the minimum clear height requirements for the basement. This building uses a localised fan to circulate the air with the help of a computational fluid dynamic study. This move eliminated the need for duct work and additional structural work to increase the basement height, thus saving installation time and costs.



According to Mr Fong See Chet, Operations Manager for Bovis Lend Lease, who led the project, many companies tend to focus only on environmental features. "Sustainability

in Bovis Lend Lease requires that economic, social and environmental elements be integrated in project planning and that mutually beneficial outcomes are sought with minimal trade-offs for all stakeholders," he said. "We engage our stakeholders to help them understand how our work affects their lives. We ensure that our policies and practices reflect the integration of the three sustainability elements and enhance the projects that we deliver, own or operate."

BUILDING BLOCKS OF EXCELLENCE

City Developments Limited (CDL) has received a total of 14 BCA Best Buildable Design Awards, the highest number won by any private developer since the launch of this Award in 1991. **Mr Eddie Wong**, General Manager of CDL's Projects Division, describes CDL's drive in leading the industry and achieving excellence in buildable design.



Quality has commonly been the yardstick by which building excellence is judged. While constant effort is made to harness state-of-the-art technology to build better quality homes, CDL also focuses on exploring new and innovative ways to achieve construction efficiency through a strong emphasis on buildable design. We believe that an “easy-to-build” design will yield significantly better construction quality and labour productivity, as well as contribute to a cleaner and safer work-site.

This “easy-to-build” philosophy underscores the entire developmental process, from architectural concept design to construction methodology and project management practices.

Creativity in architectural and engineering designs with an extensive usage of pre-cast and pre-fabrication techniques allows for ease in construction, as well as significant time and cost savings in the construction process.

Butterworth 33, a small-sized development with just 20 apartment units, was one of CDL's Best Buildable Design Award projects. The project was located on a narrow site at a high-density residential area. In response to the limitations of space on-site, a buildable design was needed.

The architectural design for the structure incorporated a combination of pre-cast components with cast in-situ elements for the construction. With careful planning of the design of these pre-cast elements, the building was eventually erected without the use of external scaffolding. The extensive use of pre-cast technology also ensured that noise and dust generated during the construction stages were minimal. Indeed, buildable designs are achievable even for small-sized projects.

To further enhance the buildability of each development, CDL's construction methodology includes the integration of numerous technological innovations that are designed as specific solutions to address the requirements and challenges posed by each site.



Butterworth 33



The Pier at Robertson

In the case of The Pier at Robertson, a mixed development comprising 201 residential apartments and 13 commercial units, the site challenges were met with the introduction of an innovative structural buildable feature. As the site was located above eight metres of thick soft marine clay, a safe excavation method was required for the construction of the two-level basement. Adopting the Secant Pile Wall construction method mitigated any potential risk of soil movement and problems such as damage to neighbouring building structures. Compared to the conventional steel sheet pile brace with two levels of steel strutting, this method reduced construction time by as much as 13 weeks.

As we continue to introduce definitive lifestyle concepts, we also remain committed to innovate and challenge conventional construction methodology. This is how we continue to raise the bar for building excellence with each development, through which we influence and challenge our consultants and contractors to construct our buildings to be as simple as the 'LEGO' system, which is our ultimate goal for a buildable design.

CDL was the recipient of one Universal Design Award, two Best Buildable Design Awards, three Construction Excellence Awards and four Green Mark Awards (including two Green Mark Platinums) at the BCA Awards this year.

The Way to

Launched in 1986, the BCA Construction Excellence Awards is a platform for recognising and achieving excellence in areas of project management, safety, quality and cost. Among the winners this year, two projects were featured in this issue of PILLARS.

Woh Hup – 15 Awards and still going strong

The award for WhiteWater Executive Condominium is the latest to a total of 15 BCA Construction Excellence Awards earned by Woh Hup since 1991. The company also has three Certificates of Merit for its projects.

Woh Hup's construction teams are trained to understand and apply the BCA's Construction Quality Assessment System (CONQUAS) and Quality Mark requirements to ensure consistent delivery of the high standards of workmanship. Woh Hup also adopts an Integrated Quality Management approach that involves its client, sub-contractors and suppliers, coupled with an efficient in-house Quality Assessment System to bring about greater efficiency during construction and a higher BCA CONQUAS score.

The company places priority on satisfying its clients' quality requirements by utilising trained staff in a safe working environment. It further inculcates a strong quality culture in its organisation by conducting in-house training and seminars for site staff, including its sub-contractors, and giving project staff the opportunities to share experiences learnt from completed projects.

Founded since 1927, Woh Hup has carried out many notable projects in Singapore and the region. Its achievements also include certification under ISO 9001:2000, OHSAS 18001, ISO 14001 and People Developer Standard. The company is continuously looking into enhancing its features and characteristics of its services to improve the efficiency and quality of its projects.



WhiteWater
Executive
Condominium



Monterey Park
Condominium



Tanamera Crest
Condominium



Water Place



The Gardens
at Bishan

Excellence

Excellence Award recognises builders for management, technology and construction
prominent local builders are featured in

Tiong Seng Contractors – Excellence begins at home

Tiong Seng Contractors' breakthrough in quality excellence began in 2001 with the adoption of a business excellence framework based on the attributes of world-class organisations. In the following year, its commendable performance earned the Singapore Quality Class recognition from SPRING Singapore.

Guided by the new framework, Tiong Seng Contractors re-established its vision and mission and mapped out an overall strategic plan covering all essential business objectives, including quality, safety and productivity. The resulting quality strategic plan served as the guide and direction in its journey towards quality excellence. Various action plans were designed to micro-manage the quality processes and activities. These action plans, and their corresponding performances, were closely monitored for further improvements.

From then, the company had revamped all its departments to be aligned with the business excellence framework. A systematic 'Plan-Do-Check-Act' improvement cycle was built into all processes. Information systems were reorganised to provide for seamless intra-communication and knowledge sharing within the company. And a corporate culture of continuous improvement and innovation was emphasised and embedded into the processes.

Although it was a painful process, it has yielded the result of quality products and services. Tiong Seng Contractors recognises that there is no finish line in the journey of quality excellence. The business excellence framework, the continuous improvement culture, the innovation mindset and the use of IT – which have driven the company in the past – will continue to drive it further.



Home Team
Academy



Jurong Pier
Flyover



Kim Chuan
Link Sewer
Contract 1



Seletar Link
Sewer
Contract 1

Green Test Bed

The BCA Academy of the Built Environment, formerly Construction Industry Training Institute, is the education and research arm of BCA. Apart from providing quality education, it is fast establishing itself as a centre for research and development, especially in the test-bedding of green building technologies. Already, some research and test-bedding projects are underway.

Vertical Greenery System

As part of a tripartite research project between National Parks Board, National University of Singapore and BCA, Shimizu's Parabienta Green Wall has been installed at the Academy in early June 2007. This project will provide a better understanding of the benefits and potential of using various vertical greenery systems in Singapore. It would also serve as a showcase to propel the industry into adopting vertical greenery systems for future building projects.



close-up view



Shimizu's Parabienta Green Wall

Workers spraying on the heat insulation coating for glass at BCA Academy.



Spray-on Heat Insulation Coating for Glass

On 5 June 2007, Japan Technology Center successfully added a spray-on heat insulation coating for the glass windows of a room in the Academy. This simple spray-on heat insulation coating had been applied successfully on Japan Railway trains and buildings in Japan with the ability to block out more than 90% of ultra-violet rays. The performance of this new technology in reducing heat transfer into the room is being monitored.

Desert™ Waterless Urinal Cubes

The conservation of water, a precious resource in Singapore, is an important element of a sustainable built environment. Working with the Public Utilities Board, BCA is test-bedding the use of Desert™ Waterless Urinal Cubes in the toilets in the Academy. This system is rapidly gaining popularity across Australia as it not only results in water savings but also odour elimination, chemical-free maintenance and improved hygiene. A water meter has been installed to monitor the water consumption of these urinals.

The Desert™ Cubes are placed in the urinal bowls, and the water supply is turned off. A small amount of water is poured into the urinals each day to flush away degraded matter and to activate the cubes, which contain microscopic organisms to convert uric scale deposits into more soluble compounds.



Solar Panels

To promote photovoltaics through the Clean Energy Programme Office co-led by BCA and Economic Development Board, BCA will collaborate with Ngee Ann Polytechnic to carry out a follow-up study on the photovoltaic systems. Such systems were first researched and demonstrated by both parties in 2002. The proposed study would include measurements and analyses on power quality, harmonics, voltage flickers, voltage unbalance, among others, as compared to five years ago.

Three types of photovoltaic systems - mono-crystalline, poly-crystalline and thin film (CIS) - are installed at the BCA Academy.



Introducing... Eco-Concrete

Eco-Concrete is an initiative to replace sand and granite in the production of concrete.

Since the recent sand ban and disruption in granite supplies, BCA has been working with the construction industry to increase its resilience in the supply of raw materials and reduce its dependency on natural sand and granite.

One such initiative is to increase the adoption of recycled materials to replace sand and granite to produce concrete. Such concrete is termed eco-concrete as it is produced in an ecologically friendly manner. It uses recycled aggregates from demolition waste to replace 100% of the granite coarse aggregates and recycled washed copper slag – a waste by-product of the ship building and repair industry – to replace 70% of the natural sand.

The eco-concrete prototype has been developed by a ready-mix concrete supplier, M/s Holcim. Representatives from major procurement agencies such as the Housing & Development Board, Land Transport Authority, National Parks Board and Public Utilities Board were recently invited to witness the trial mix design for Grade 30 eco-concrete. Tests conducted showed that the properties of eco-concrete in terms of workability, slump loss and strength were as good as those of normal concrete.

The Housing & Development Board is presently exploring the use of eco-concrete for non-structural slab at one of its Interim Upgrading Projects to demonstrate the performance of eco-concrete in terms of strength and durability. Through such partnerships with industry stakeholders, BCA hopes to accelerate the adoption of sustainable construction by the industry.

Representatives from BCA and government agencies study a stockpile of recycled aggregates.



Slump test demonstrates that the workability of eco-concrete and normal concrete are comparable.

ENGAGING PROFESSIONAL ENGINEERS

- STRUCTURAL INSPECTIONS

Professional engineers – in addition to building owners – play an important role in mandatory periodic structural inspections. Such inspections seek to detect structural defects and rectify them as early as possible to ensure that buildings in Singapore remain safe for continued occupation.

Almost two decades since such inspections became mandatory in 1989, BCA continues to engage professional engineers and owners in fruitful and collective dialogue to ensure the effectiveness of periodic structural inspections.

To aid the smooth implementation of the inspection programme, BCA publishes the Building Owner's Guide, guidelines for structural inspection and requirements of periodic structural inspections. To improve the effectiveness of the inspections, BCA reviews and enhances these guidelines regularly, taking

into consideration feedback from owners and professional engineers.

Following the latest round of revisions, BCA organised two dialogue sessions for more than 60 professional engineers. To reach out to more owners, properties management agents and professional engineers in industry, the enhanced guidelines would be made available through the BCA website, CORENET, courses and seminars.

At the dialogue sessions with the professional engineers, BCA reminded them of the important role they play, and urged professional engineers to carry out their duty and responsibility diligently.



Assurance of structural safety through structural inspection.



Highlights on Enhancement of Guidelines for Periodic Structural Inspections

- Carry out structural inspections personally
- Inspect critical structures such as cantilevers, transfer beams and slender columns
- Look out for structures exposed to corrosive and harmful materials in buildings such as warehouses, factories and laboratories
- Detect any addition and alteration works that may overload or overstress structures
- Inspect slope and slope protection structures to prevent danger to buildings
- Advise owners upfront on the need to provide access for the purpose of carrying inspection
- Recommend termite treatment by anti-termite specialists for termite-infested structures
- Check safety barriers that are critical in preventing people falling from heights

upcoming events

Date	Event	Contact
7 & 8 Aug 07	Seminar on Design and Construction of Steel-Concrete Composite Buildings	Xanna Tan DID: 62489824/843 Email: xanna_tan@bca.gov.sg
14 Aug 07 21 Aug 07	Good Industry Practices - Painting Good Industry Practices - Aluminium Window	Huang Xiao Man DID: 62489843/824 Email: huang_xiaoman@bca.gov.sg
16 & 17 Aug 07	Construction Contract Administration Course	Huang Xiao Man DID: 62489843/824 Email: huang_xiaoman@bca.gov.sg
20, 21, 27 & 28 Aug 07	Geotechnical Instrumentation for Engineer	Huang Xiao Man DID: 62489843/824 Email: huang_xiaoman@bca.gov.sg
20, 21, 22, 27, 28, 29 Aug & 17 Sep 07	The Singapore Certified Energy Manager (SCEM) Programme - Energy Audit & Measurement (Prof. Level)	Huang Xiao Man DID: 62489843/824 Email: huang_xiaoman@bca.gov.sg
21, 23 & 28 Aug 07	Energy Efficient Air-Conditioning for Commercial Buildings	Xanna Tan DID: 62489824/843 Email: xanna_tan@bca.gov.sg
29 Aug 07	CONQUAS 21 Training (for Developer & Consultants)	Huang Xiao Man DID: 62489843/824 Email: huang_xiaoman@bca.gov.sg
15 & 16 Sep 07	Project Management	Huang Xiao Man DID: 62489843/824 Email: huang_xiaoman@bca.gov.sg
26 & 27 Sep 07	Geotechnical Design and Applications using Eurocode-7	Xanna Tan DID: 62489824/843 Email: xanna_tan@bca.gov.sg
15 - 20 Oct 07	6th Tsinghua University - BCA Management Training Programme	Wong Mee York/ Grace Teo DID : 62489894/ 834 Email: wong_mee_york@bca.gov.sg/ grace_teo@bca.gov.sg

🎁 Contest

1. How many BCA Awards were given out this year?
2. What is the name of the new BCA Award introduced this year?
3. What is the name of the education and research arm of BCA?

Send in your answers by 31 August 2007 to Editor Pillars, Building and Construction Authority, 5 Maxwell Road, #16-00, Tower Block MND Complex, Singapore 069110. Or e-mail: bca_enquiry@bca.gov.sg or fax to 63254800. Please indicate your name, designation, company, phone number and address. Selected entries will stand to win attractive shopping vouchers.

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