



**How much do green buildings really cost? · p8-9**

**New Window Safety Standard · p14**

Building and Construction Authority 

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

**BCA Breakfast Talk for CEOs · p3-4**

3-4 • BCA breakfast talk for ceos 5 • main highlights of kevin hydes' presentation 6 • developers' take on business case for green buildings 7 • case studies 8-9 • how much do green buildings really cost? 10-11 • joining hands for green research 12 • groundbreaking of ecoasis 13 • guide on fire protection and performance-based fire engineering 14 • new window safety standard 15 • a click for a job

## editorial committee

Chief Editor: Leong Ee Leng

Editor: Kevin Tan

Editorial Committee Members:

Irene Ho

Lim Lek Lin

Low Yee Mei

Phua Hui Chun

Rajesh Kannaya Nainani

Siti Manisah Sualman

Steven Tan

Circulation Officer: Nor Ainah Bte Ali

Contributors for this issue:

Lam Fei Yen

Chia Yen Ling

Kevin Tan

Yvonne Soh

Tan Hoon Wee

Phua Hui Chun

Teo Orh Hai

Pillars is published bi-monthly by the Corporate Communications Department, Building and Construction Authority  
5 Maxwell Road #16-00 Tower Block MND Complex Singapore 069110

Tel: 6325 7720 Fax: 6325 4800 Email: [bca\\_enquiry@bca.gov.sg](mailto:bca_enquiry@bca.gov.sg) Website: <http://www.bca.gov.sg>

Written permission must be obtained from BCA to reproduce any part of Pillars.

### Your views and contributions

Let us know what you think about Pillars. You are also welcome to contribute an article, subject to our approval. Please attention it to

**The Editor, Pillars** if you send by post or fax to the BCA address stated above. Alternatively, you can email to [bca\\_enquiry@bca.gov.sg](mailto:bca_enquiry@bca.gov.sg).



# BCA BREAKFAST TALK FOR CEOs



BCA kicked off its inaugural BCA Breakfast Talk for CEOs on 23 February 2008, where internationally renowned experts from the building and development industry shared their experiences and global perspectives with leaders of the industry. The event was graced by Mr Mah Bow Tan, Minister for National Development, and featured guest speaker Mr Kevin Hydes, Chair of World Green Building Council. More than 150 invited guests comprising CEOs and senior management in the building industry attended the talk.



In his welcome address, BCA CEO Dr John Keung announced that BCA was planning to give awards and recognition to developers, consultants and contractors in the industry who were consistent in their efforts to support the green building movement and implement environmentally sustainable building projects. He also announced that BCA would be forming an International Panel of Experts for Sustainability of the Built Environment. The panel would comprise leaders and renowned experts in green buildings who would review the approach towards shaping a sustainable built environment, share their knowledge with the industry and promote greater awareness and acceptance of green buildings.



Guest-of-honour, Mr Mah Bow Tan, said in his opening address that sustainable development remains a key priority for the government. As announced earlier this year, Singapore had established an Inter-Ministerial Committee on Sustainable Development jointly chaired by Mr Mah and Dr Yaacob Ibrahim, Minister for the Environment and Water Resources. The committee would chart strategic directions and develop new initiatives for sustainable development.



As an urban city-state, Singapore needs green buildings as an integral part of a sustainable development strategy for the future. Mr Mah emphasised the need for the government to partner the industry and consumers to promote green buildings.

In closing, Mr Mah reminded everyone that sustainable development was about balancing economic development and growth with having a quality environment.



The keynote speaker, Mr Kevin Hydes, Chair of World Green Building Council, presented on 'Green Buildings – The Business Case and Corporate Social Responsibility'. His presentation covered the global green building movement with an emphasis on the business case for green buildings.

Globally, buildings accounted for 33% of carbon emissions. With green buildings, manufacturers would emit fewer emissions because materials were chosen more sensibly; and as the buildings were located based on urban planning, people would be less car-dependent.



Mr Hydes also mentioned that BCA had the most progressive incentive he had seen so far. He observed that BCA had led one of the biggest delegations to GreenBuild 2007, a mega event on sustainable buildings, in the United States last year. Making reference to BCA's forthcoming Green Mark legislation, he commented that incentive and regulation should work hand-in-hand for market transformation. He also lauded and reiterated the key strategies on environmental sustainability mentioned by Mr Mah in his speech when it came to partnering homeowners (consumers) and industry to promote green buildings.

Finally, a panel discussion brought the Breakfast Talk to an end. Apart from Dr Keung and Mr Hydes, the panel welcomed Mr Liew Mun Leong, President and CEO of CapitaLand, and Mr Chia Ngiang Hong, Group General Manager of City Developments. Both CapitaLand and City Developments were the strongest supporters of the BCA Green Mark Scheme.

development

08



# MAIN Highlights of **KEVIN HYDES'** Presentation

## **Top 10 Reasons Why Green Buildings Make Sense**

1. Benefit Your Community
2. Create More Predictable Results - as green buildings would have a green label on it for example, BCA Green Mark
3. Take Advantage of Incentive Programs - "incentives in Singapore are amongst the best in the world"
4. Increase Property Value - in real estate sectors, developers get increase in asset value of a green vs non-green product
5. Create Value for Tenants - office tenants & home owners recognise value of green space
6. Reduce Liability
7. Enhance Health and Well-being
8. Boost Employee Productivity - statistical evidence has proven increased productivity of occupant in green buildings
9. Design for Cost Effectiveness
10. Recover Higher First Costs – if any

# Developers' Take on Business Case for Green Buildings



Going Green Can Make Business Sense  
*Mr Chia Ngiang Hong, Group General Manager, City Developments Limited*

Increasingly, the business climate today is moving towards a heightened focus on environmental sustainability. With thoughtful planning and foresight, green buildings do not have to cost more. Even when it does, the returns on investment and the positive impact on the environment are often much greater.

At City Square Mall, CDL's first eco-mall and BCA's first Green Mark Platinum for a commercial building, we invested approximately 5% of the total construction cost in the Mall's numerous green innovations. The payback is the reduction of an estimated 5,700 tonnes of carbon dioxide emission in a year during operation and energy savings of about \$2 million a year. The savings does not even take into consideration the added capital value a building may have by being more eco-friendly, a definite plus for commercial building owners

For residential developments, price still remains a prime factor in the decision-making process. However, buyers will certainly appreciate energy and water efficient fittings in their homes. At The Oceanfront @ Sentosa Cove – BCA's first Green Mark Platinum for a private residential development, the reduced energy costs for air-conditioning alone are estimated at \$1,000 per apartment per year.

With a genuine concern for our environment, CDL believes in positive value creation to benefit our stakeholders and differentiating our products by "greening" them. In 2007, our outstanding green design for South Beach development was crucial to the success of being awarded the high profile tender.

Adopting socially and environmentally responsible business practices while remaining financially profitable has been a proven business strategy for us. We continue to refine our practices, challenging ourselves to attain even better results.



Business Case for Green Buildings in Singapore  
*Mr Liew Mun Leong, President and CEO, CapitaLand Limited*

For any responsible developer, Green Buildings is the natural thing to do as part of its CSR. CapitaLand has all along been a Green developer. Many of our commercial, retail and residential properties have won local and regional Green awards. Since the beginning of 2006, we have set internal Green targets above legislative requirements – all our Singapore projects should be Green Mark certified. This year, with BCA making Green Mark certification compulsory, we have raised the minimum target for our buildings to Green Mark Gold.

Under current technology, there is a premium to be paid for going Green. Incorporating Green features for Green Mark Gold for example could add 1% to 2% to overall cost. We would, however, not place too much emphasis on whether there is a business case for going Green. Building environmentally friendly buildings is part of our CSR.

One way the government can promote a Greener real estate industry is to provide incentives for developers to go Green. For example, additional GFA can be given to developments that meet higher Green standards. This makes sense as raising the GFA will allow more intensive use of our limited land while going Green will ensure that such more intensive developments will not put additional strain on our environment. This will not cost the government anything, but I believe will have a very positive effect in encouraging the real estate industry to adopt higher Green standards.



# Case Studies

## City Square Mall



City Square Mall is a 9 Storey Commercial Development comprising of a Retail Podium from the 1st to 5th Sty, an Institutional Tower from the 6th to 9th Sty & 4 levels of basements consisting of 2 levels of Car park, 2 levels of Retail & other Ancillary Facilities including an Urban Park / Sunken Plaza @ Kitchener Road & Serangoon Road.

### Key Green Features

- Eco-rest rooms fitted with “very good” to “excellent” Water Efficiency Labelling Scheme PUB-fittings
- Twin chute (organic & inorganic waste) pneumatic waste disposal system
- Real time display of indoor environmental performance for public awareness
- Priority parking for Hybrid cars
- Basement carpark fitted with motion sensors to control lighting level

Expected Energy savings per year: S\$2 mil

## Xilinx Asia Pacific Headquarters



Xilinx Asia Pacific Headquarters consisting of a 6-Storey Office Cum Business Park Development located within Changi Business Park

### Key Green Features

- Use of high performance low-emissivity double glazing unit for all external windows and full height ‘shop-front’ glass
- Innovative use of heat pipe & dessicant dehumidifier
- Maximise day lighting into office floors by limiting floor depth to not more than 10 metres; this also enhances visual connectivity with external natural environment
- Extensive use of low VOC paint & to zero-formaldehyde-emission carpet improve indoor air-quality
- Extensive use of T5 lights in offices, car park and operational floors.
- Use of motion detection system integrated with lighting in meeting rooms, toilets, car park & staircases.
- Use of Centralized Lighting Management System which is linked to Building Management System via IT backbone
- Use of Solar cum heat pump hot water system
- Use of recycled condensate water for landscape irrigation

Energy savings per year: S\$500,000



# How Much Do Green Buildings Really Cost?



The Singapore building and construction industry has made laudable efforts in the recent years in response to climate change. The built environment here has undergone a visible transformation towards green and high-performance buildings. This is possible because of the shift in the mindset of various stakeholders in the construction value chain. Many now believe that going green is the way to go. We are beginning to see big international clients who demand for green buildings and offices. And with an increasing number of green buildings, green cost premiums are no longer prohibitive. While there used to be the perception of a high cost premium in constructing a green building over a basic code-compliant building, this is no longer the case. More developers and building owners are willing to pay the green cost premium in return for a higher building value.

## Business Case for Green Buildings in Singapore

BCA has just conducted a preliminary study of the Business Case of Green Buildings in Singapore. It was based on an aggregate analysis of 15 BCA Green Mark certified buildings at various rating levels and for different types of development. The results of the preliminary presented below are indicative of the ballpark green cost premiums and payback periods of green buildings in Singapore.

The cost premium generally varies with the building type, with a green industrial or institutional building usually at the lower end of the range. Commercial and residential buildings generally incur a higher green cost premium due to higher performance designs. There is no great disparity in the payback periods of Green Mark Certified and Green Mark Platinum buildings as the greater cost premium of green buildings at higher rating levels could be recovered with larger amounts of energy and water savings.

BCA Green Mark Award Type	Green Cost Premium (%)	Payback Period (years)
Platinum	2% to 8%	2 to 8 years
Gold <sup>Plus</sup>	1% to 3%	2 to 6 years
Gold	1% to 2%	2 to 6 years
Certified	0.3% to 1%	2 to 5 years

*(Footnote: The green cost premium is defined as the extra construction cost incurred in constructing a green building over a code compliant building. The payback period is computed by taking the green cost premium over the sum of annual energy and water cost savings accrued. Outliers and abnormalities were removed to prevent bias and skewness of the results. The cost data was normalised to a base year. This Business Case would be strengthened through further research and data collation in the future, with the collective efforts of the industry).*



## How Others around the Globe Value Green Buildings

At the recent BCA Breakfast Talk for CEOs on 23rd Feb 08 graced by Minister Mah Bow Tan, guest speaker Mr Kevin Hydes, Chair of the World Green Building Council (GBC), shared that U.S. GBC estimates that - a \$4 investment (per square foot) in green buildings nets a \$58 benefit (per square foot) over 20 years. The savings include direct energy and water savings as well as those from increased productivity and health of building occupants which are estimated to be substantial. Interestingly, Mr Kevin Hydes also shared that sustainability is good business because Dow Jones Sustainability Index that tracks performance of sustainable driven companies showed that the share performance of a green business would be 50% better than normal businesses.

In a study titled 'The Costs and Financial Benefits of Green Buildings' performed for California's Sustainable Building Task Force by Greg Kats in 2003, the average reported cost premium for all 33 diverse buildings is somewhat less than 2%. Five green buildings in the data set had almost zero cost premium. Green Buildings provide financial benefits that conventional buildings do not. The study concluded that financial benefits of green design are between US\$50 and US\$70 per square foot in a Leadership in Energy and Environmental Design (LEED) green building, over 10 times the additional cost associated with building green. These benefits include energy and water savings, reduced waste, improved indoor environmental quality, greater employee comfort/productivity, reduced employee health costs, lower operations and maintenance costs.

The Royal Institution of Chartered Surveyors (RICS) in United Kingdom released a report 'Green Value – Green Buildings, Growing Assets' in 2005. The study highlighted that green buildings are good for the environment. They also provide healthier places to live and more productive places to work, attract tenants more quickly, reduce tenant turnover and cost less to operate and maintain, resulting in an improved asset value.

## Expected decline in green cost premium

It is believed that with increasing energy and water costs and the rapid advancement in green building technologies, there would be an even stronger business case for the wider adoption of green buildings in Singapore. In this respect, the Chair of the World Green Building Council, Mr Kevin Hydes, believes that the price of green building technologies will drop as the market takes up the product. He also cited that the case of technology market transformation is similar to green building technologies market transformation. For example, the cost premium of flat screen, as compared with CRT, is minimal with strong market demand for flat screen. It can be expected that with greater adoption of green buildings to form a critical mass of demand for green building technology coupled with increased experience in green building construction, the cost premium of green buildings in Singapore will be further driven down.



# JOINING HANDS FOR GREEN RESEARCH

Industry partners have been taking their own initiative to pursue research and development efforts in sustainable construction materials to support BCA's Sustainable Construction Masterplan. For example, there was a recently signed joint venture between two seemingly dissimilar companies – one in waste processing and the other in the production of ready-mixed concrete.

*Usage of Ecocrete for sunlight-exposed pavements keeps the pavements and surroundings cooler.*



EcoWise is an experienced waste material processing and handling company, listed on the Singapore Stock Exchange. It is also one of the few companies licensed by the National Environment Agency to collect and process used copper slag from the ship repair industry.

By contrast, Holcim Singapore, wholly owned subsidiary of Swiss-based multinational, Holcim Limited, is one of the largest local producers of ready-mixed concrete and a leading supplier of cement and aggregates. It has a well-built foundation in research and development of construction materials. Its parent company is listed in the Dow Jones Sustainability Index and has been named as "The Leader in the Industry" several years in a row.

The joint-venture company, named Geocycle Singapore, will focus on the sharing of knowledge and expertise between both partners in the areas of industrial material recovery, recycling and processing. This will create new possibilities and breakthrough in the advancement of research and development for other waste materials.

These efforts towards sustainable development would help in conserving a similar amount of natural resources for the benefit of society and our future generations.



## Used Copper Slag

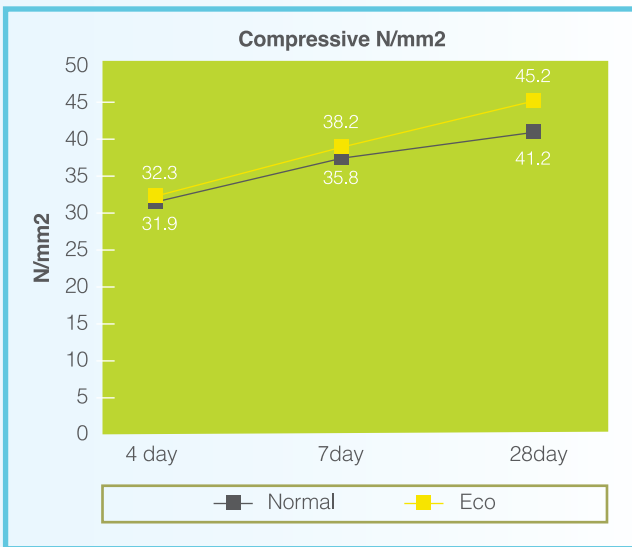
For example, about 400,000 tonnes of used copper slag, which is a waste product from the ship repair industry, is available each year. Potentially, the treated and refined copper slag can be turned into an alternative to replace sand for use in the production of concrete. This solution could address the challenge Singapore has been facing recently in the availability of sand (fine aggregates).

However, as copper slag cannot be used directly, it needs to be processed to remove deleterious materials and to make it an inert fine aggregate. Here, Holcim Singapore has successfully developed a process to convert copper slag into a useful product.

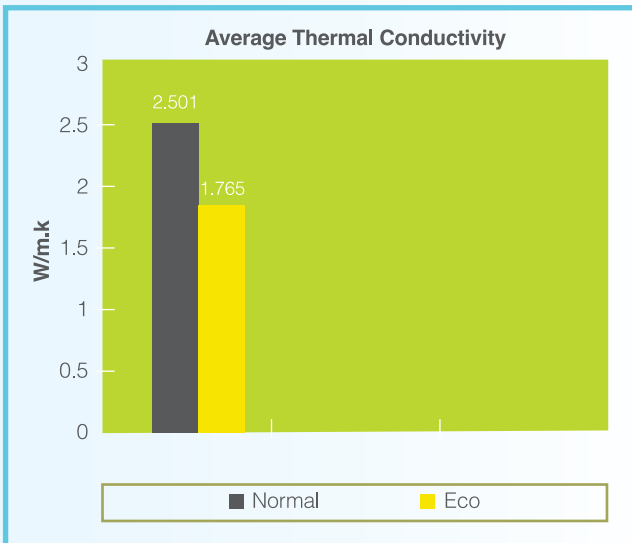
The resulting washed copper slag sand is a material which could be even better than natural or manufactured sand as it is less angular and has negligible water absorption qualities. This in turn could make concrete more workable and denser.

Eco-Wise has been making available this recycled washed copper slag sand. At the same time, Holcim Singapore has used it to develop Ecocrete in support of BCA's efforts to encourage the development of eco-concrete for a wide range of non-structural applications.

The new Singapore Standard specifications for aggregates would permit the use of washed copper slag sand and other non-natural aggregates for production of structural and non-structural concrete. For non-structural concrete, a 100% replacement of sand by washed copper slag sand is possible, whereas for structural concrete, a partial replacement is permitted.



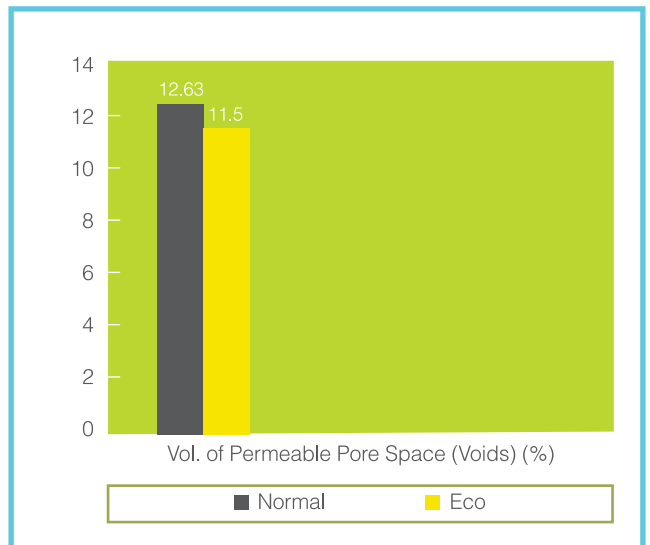
Compressive Strength results show that compressive strength of Ecocrete is higher than normal concrete at all ages.



Thermal Conductivity, measuring the flow of heat or the ability to absorb heat, is lower in Ecocrete than in normal concrete.

Washed copper slag sand has certain unique characteristics:

- It is an inert material, cleared by the National Environment Agency for re-use as an inert material
- It is not alkali silica reactive, which is a very important property
- It has negligible water absorption and as such, it has low water demand, making the concrete denser and stronger
- It provides higher workability due to its lesser angular particles
- It does not affect the external appearance of the concrete
- It has low paste porosity, making the concrete durable and less permeable than normal concrete
- It has low heat absorption and is thus cooler than normal concrete when exposed to direct sunlight
- It gives higher compressive strength for the same mix proportion.



Water absorption and water permeability test results show that Ecocrete is less permeable than normal concrete.

### Incineration Bottom Ash

The EcoWise-Holcim joint venture is also researching on the various uses of processed incineration bottom ash in concrete. As the bottom ash is an industrial waste, its constructive use in concrete would be a positive contribution to sustainable construction materials.





# Groundbreaking of EcOasis



The EcOasis is a first-of-its-kind partnership between government, an environmental (non-government) social enterprise and the private sector. The organizations involved in this project are: The Building and Construction Authority (BCA), Mitsubishi Electric Asia Pte Ltd and the Environmental Challenge Organisation (Singapore), also known as ECO Singapore.

Finance Minister Tharman Shanmugaratnam was the Guest-of-Honour at the groundbreaking ceremony.

Conceptualised by a group of youth, the EcOasis aims to raise awareness on issues surrounding sustainability in our built-up environment in general, and the ecology of our buildings in particular. The purpose is to facilitate a more sustainable future and way of living through the making of informed choices.

The EcOasis will also serve as an environmental learning platform for casual visitors to the Science Centre, as well as students participating in the Enrich! Programme on Environmental Sustainability.

The EcOasis will showcase the following technologies:

- Alternative energy sources such as photovoltaic cells
- Rainwater and Grey Water harvesting systems
- Green roof and walls
- Green living space

The collaborative project is expected to be completed by the end of April 2008.

## About Environmental Challenge Organisation (Singapore)

ECO Singapore is the leading youth-led Non-Governmental Social Enterprise on sustainable lifestyles. It aims to challenge youth between 17 and 35 years old to adopt a sustainable lifestyle and embrace environmental issues holistically. ECO Singapore actively drives and supports local and global environmental initiatives involving environmental and youth-related stakeholders.

# Fire Protection and Performance-based Fire Engineering

- Are fire safety requirements more stringent for steel buildings than concrete buildings?
- Is fire protection required for composite metal decking floor system or metal roofs?
- Is there any other alternative dry construction for floor system?

*If these are some doubts which have been bothering you concerning the use of sustainable materials, take a look at our new published 'Guide on Fire Protection and Performance-Based Fire Engineering' where you can find answers to address your concerns.*

The 'Guide on Fire Protection and Performance-Based Fire Engineering' was developed by BCA together with industry partners, to address the industry's concerns and to dispel misconceptions on fire protection associated with sustainable construction. The partners involved in the project include the Singapore Civil Defence Force, Housing & Development Board, Singapore Institute of Architects, Singapore Structural Steel Society and Nanyang Technological University.

Through the guide, readers can find out useful information on fire safety requirements for buildings adopting sustainable construction. It explains the general requirements pertaining to fire resistance and elaborates on the possible applications of different sustainable materials. It also highlights different types of passive fire protection methods and explains the concept of performance-based fire engineering which is gaining in popularity amongst designers in recent years.

In conjunction with the launch of the Guide, BCA organised a seminar on 'Fire Protection for Sustainable Construction' on 25 January 2008.

The seminar was well attended by more than 250 industry professionals. A mini exhibition was also held at the seminar venue to promote interaction between participants and fire protection specialists.

*The soft copy of the 'Guide on Fire Protection and Performance-Based Fire Engineering' is available at BCA's website [www.bca.gov.sg](http://www.bca.gov.sg)*



*Mr Song Yew Kee, representing the Singapore Institute of Architects in the Working Committee that developed the Guide on Fire Protection and Performance-based Fire Engineering, shared on fire protection in sustainable construction*



*Major Choh Choon Jin from the SCDF spoke on protection of structural steel from fire*

# NEW WINDOW SAFETY STANDARD



SS 212:2007 is the revised Specification for Aluminium Alloy Windows introduced by the Standards, Productivity and Innovation Board (SPRING Singapore) on 26 October 2007. Find out what the new standard means to the building and construction industry.

## What is the purpose of SS 212:2007?

The revised standard aims to enhance the safety of windows by improving their design and performance further. The last revision of the standard was carried out in 2000.

## When will it take effect?

The new standard applies to development projects whose first building plan submissions are made to BCA from 1 April 2008 onwards.

## Is SS 212:2007 aligned with the Building Control Regulations?

Yes, windows complying with SS 212:2007 are deemed to have met the window design and installation regulations set out under Paragraph M of the Fifth Schedule of the Building Control Regulations. These regulations had been introduced in October 2004 to address the concern of window safety by requiring windows in new development projects to be adequately designed and constructed with appropriate materials.

## How can developers avoid project delays with the new standard?

Developers and building owners must engage approved window contractors to undertake the job. To avoid any delays in plan approval and the issuance of Temporary Occupation Permit or Certificate of Statutory Compliance, qualified persons must ensure that the design and performance of the windows to be used in their projects comply with the revised standard.

## How can I find out more about the new standard?

You can purchase hard copies of the SS 212:2007 from SNP Corporation. For the online purchase of a softcopy, please contact SPRING Singapore at 6278 6666 or visit their website at <[www.spring.gov.sg](http://www.spring.gov.sg)> for more information.



# A Click for a Job



Muhammad Ansari

Muhammad Ansari was all smiles when he chanced upon the BCA Built Environment Job Portal during the Career 2008 and Education 2008 Fair.

Armed with a Building Construction Safety Supervisor Certificate and a National ITE Certificate in Mechatronics, he was actively seeking a safety supervisor job within a “developing and vibrant organisation”.

“With the click of a mouse, I can view job offers of my choice from various sectors of the industry, including developers, consultants and contractors,” he said, commenting on the features of the new portal. “Response from my request for more information about the job offers was very forthcoming. I am looking very much forward to my first interview.”

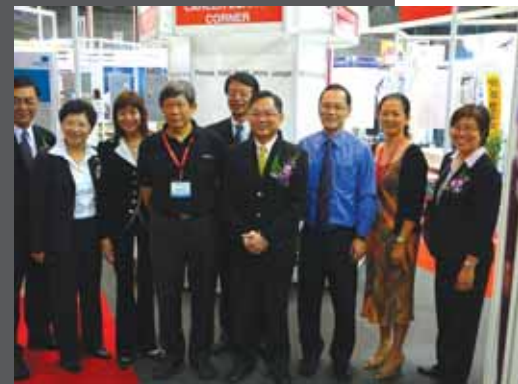
## Search [www.bca.gov.sg](http://www.bca.gov.sg)

BCA launched the Built Environment Job Portal on its homepage in conjunction with its participation at the Built Environment Pavilion during the Fair at Suntec Singapore from 28 February to 2 March 2008. The Pavilion featured career opportunities in the industry and the courses offered by the BCA Academy, as well as diploma and degree courses for the built environment offered by the Singapore Polytechnic, Ngee Ann Polytechnic and the National University of Singapore.

The portal has attracted about 50 companies offering close to 400 positions. The available job openings range from project manager to architect and site supervisor. Companies have found it useful to post their job offers on the portal as it is a dedicated site for careers in the built environment.

“This is a very welcome recruitment source to our usual procurement methods. We are happy to be a part of this portal,” said Mr Michael Tan, Partner of Tan + Tsakonas Architects.

A seminar was also organised on 2 March 2008 where speakers from CapitaLand, Consultants Incorporated Architects + Planners and Meinhardt Singapore provided an insightful overview of the opportunities in the industry and the career paths of architects and engineers.



Developers, consultants and contractors who wish to place their job offers in the Portal may email Ms Tan Hoon Wee at [tan\\_hoon\\_wee@bca.gov.sg](mailto:tan_hoon_wee@bca.gov.sg)

# events

## upcoming

Date	Event	Contact
5, 7, 12 & 14 May'08	Design of Deep Excavation Temporary Earth Retaining Structures	Xiao Man (Ms) DID: 62489843/823 Email: huang_xiaoman@bca.gov.sg
6 May'08 13 May'08 20 May'08	Good Industry Practices (Waterproofing for Internal Wet Areas) Good Industry Practices (Painting) Good Industry Practices (Aluminium Window)	Xiao Man (Ms) DID: 62489843/823 Email: huang_xiaoman@bca.gov.sg
8 & 9 May'08	Project Management	Xiao Man (Ms) DID: 62489843/823 Email: huang_xiaoman@bca.gov.sg
8, 9, 10 May'08	Energy Efficient Air-Cond for Commercial Buildings (Core module of Green Mark Professional Programme)	Xanna Tan (Ms) DID: 62489824/843 Email: xanna_tan@bca.gov.sg

## Contest

- 1. What are the names and designations of the 2 co-chairmen of the Inter-Ministerial Committee on Sustainable Development?**
- 2. What are the expected energy savings per year for the upcoming City Square Mall?**
- 3. The new Window Safety Standard was introduced in October 2007. Before this, when was the last revision to the Standard carried out?**

Send in your answers by 7 May 2008 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](mailto: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.

## Contact Us

General Enquiries  
Tel: 6325 7720

Advertisement Licensing  
Tel: 6325 7379

Building Management  
Tel: 6325 7383

Construction Activity Feedback  
Tel: 1800 DIAL-BCA

Household Shelter  
Tel: 6325 7106

Barrier-free Accessibility  
Tel: 6325 8611

Plan Approval, TOP, CSC  
Tel: 6325 2211

Plan Search  
Tel: 6325 8663

BCA Academy (Courses)  
Tel: 6248 9999

Skills Certification  
Tel: 6248 9845

CONQUAS / BCA Quality Mark  
Tel: 6325 5077

BCA Green Mark  
Tel: 6325 5900

ISO Certification  
Tel: 6325 5079

Contractors Registry  
Tel: 1800-2212242

CORENET  
Tel: 6325 5004

Incentive Schemes  
Tel: 6325 5068 (IAS)