



# will it pay to build green?

## Singapore as a green building hub

Solidiance partners with the Singapore Green Building Council to review Singapore's market potential to be ASEAN's green building hub

November 2010



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## will Singapore be the next regional green building hub ?

In the international scene, the green building movement is relatively young. Singapore shows much potential to become the next regional green building hub, especially with regards to cultivating tropical green building solutions.

25 industry leaders, government bodies and opinion makers were interviewed by Solidiance in the course of writing in this paper. 370 Singapore residents, aged above 25 who intended to purchase a home in Singapore provided feedback to a public perception survey which was carried out online for a period of 6 weeks between April 2010 and June 2010. The online survey gauged the perception of the public to green buildings.

Singapore as a city-state has made its hub aspirations well known in recent years.

There has been a conscious effort led by the Singapore Economic Development Board in cooperation with various government agencies to develop biomedical sciences, information and communication technology, research and development competencies and showcase Singapore as a hub in these fields to entice multinational firms to invest their resources in Singapore. The process of developing a hub is not anything new to Singapore.

There is strong governmental support via the Inter-Ministerial Committee for Sustainable Development IMCSD, its recommendations and the concerted effort of various government bodies. Strong incentives are available to encourage the construction industry to consider green building developments. The BCA Green Mark Scheme is fast developing, with ongoing effort to test bed urban solutions for urban living.



## what drives the green initiative in Singapore ?



Source: Solidiance analysis 2010.

Different countries have different set of demand drivers pushing the industry towards a greener building practice. While the green initiative is very much industry-driven in the US and consumer-driven in Australia, it is a conscious effort by the government agencies in Singapore to bring about changes in the building practices. Signs of progress in the green building movement here in Singapore have been encouraging.

“As a small city state with limited resources and growing needs, we have to use our land, water, energy and other resources prudently, pragmatically and with an eye on the future. This way, we ensure that Singaporeans can enjoy both economic growth and a good living environment for ourselves, and for the future generation...We have gone past the point where going green is an option. It has now become an absolute necessity.”

Dr. John Keung  
CEO, BCA

Source: BCA Green Building Platinum Series: Building, Planning and Massing, 2010.



## why is green urban development important ?

What began as a subject of interest of a select group of ecologists, environmentalists and architects in the US gained momentum after the 1973 OPEC oil crisis.

Strong spikes in oil prices led to severe oil shortages and raised awareness on heavy reliance on fossil fuels. Consequently, increasing awareness on global warming, declining supplies of natural resources like freshwater, arable land, food supplies and environmental problems like top soil erosion and leaching, brought about by development, helped strengthen the case for a sustainable manner of urban development.

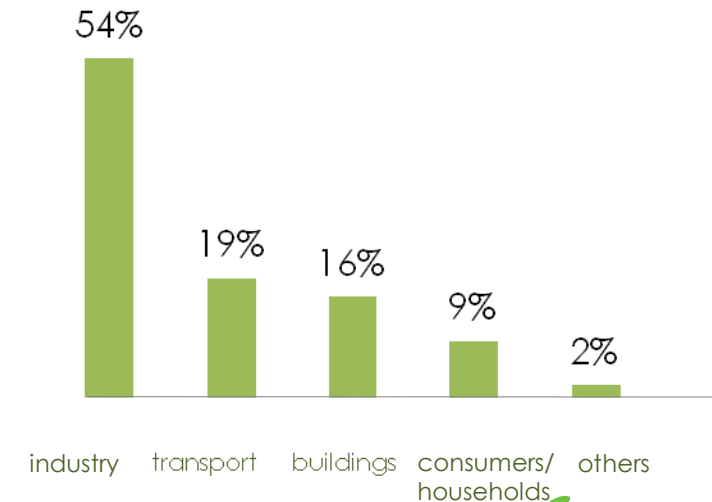
### How does a 'green building' help?

Green buildings reduce the impact on the environment by reducing demand on resources and materials.

Green building practices reduce pollution, waste and environmental degradation. The improved quality of life of inhabitants in green buildings also translates into better health and productivity.

The US Environment Protection Agency defines green buildings as "the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle. Green building is also known as a sustainable or high performance building."

### key carbon dioxide contributors in Singapore



Source: National Climate Change Strategy, 2005.





## how to engage the market to drive the green movement in Singapore ?

There should first be a strong case for the market to embrace green building practices. It is crucial that there is a common understanding on its benefits and costs between the government entities and various stakeholders in the market.

While there is a common perception that green buildings cost a heavy premium over normal buildings, industry experts interviewed over the course of this paper have highlighted that it is very much possible to complete green developments with minimal additional cost. This can be achieved if the project is handled holistically by competent professionals from the onset to incorporate inputs from various specialists in the building process (architects, mechanical and electrical engineers, regulators, consultants, construction materials suppliers etc.)

Potential savings from more efficient green buildings can also decrease operating expenses throughout the lifecycle of buildings. Green projects undertaken by competent project management teams can increase the Net Present Value (NPV) of such developments.

“The Singaporean government has been proactive in the green building scene and signs have been encouraging. Nevertheless, the ‘wait and see’ attitude remains. The step taken by the government is a step in the right direction. **The push to rein the industry into the green movement should be sustained. For the green building scene to take off, effective communication and education would be necessary.** Incentives cannot be ever lasting. At some point the market needs to take the lead. Singapore has what it takes to be a showcase. In the region, it is not uncommon for market stakeholders to say, ‘I want a building like the one I saw in Singapore’.”

Dr. Sujit Ghosh  
CEO, Holcim, Singapore

Source: Solidiance interviews  
and analysis, 2010.



## how can a green building hub culture take root in Singapore ?

“How you frame the question would pretty much determine how you define your answer. The ambivalence towards green ideas is not going to change overnight. It is a long term project where cultivation of values which care for the environment start at a young age. We need to look at the bigger picture and educate the young on the importance of sustainability.

On the market front, ethics and economics need to merge, business models need to change and focus should be on the long term impact of buildings.

We also need to further develop metrics to understand and improve on the performance of our buildings”

Dr. Nirmal T. Kishnani  
Senior Lecturer, Department of Architecture  
National University of Singapore

Source: Solidiance interview, 2010

### 1. Make the case for a green industry

- Demonstrable financial profitability from green building projects
- Understand the need for sustainable building practices due to resource limitations and pressing environmental concerns
- Establish the demand for green building projects
- Explore possibility to scale urban solutions beyond Singapore to the region

### 2. Develop the fundamental criteria for a hub

- Capacity to develop and incubate
- Encourage cross-sectoral cooperation with the market, government and academia
- Training and networking, Subject matter experts
- Research documentation and learning
- Test bedding

### 3. Develop support mechanisms

- Proactive government agencies
- Legislation, governmental support and initiative
- Market and public education and awareness
- ‘Green collar’ professionals (in the fields of materials, technology and green building consultancy)

The three main consecutive stages needed to develop Singapore as a green building hub. The first stage establishes the need for financial profitability of green building practices while the next 2 stages set the infrastructure needed.

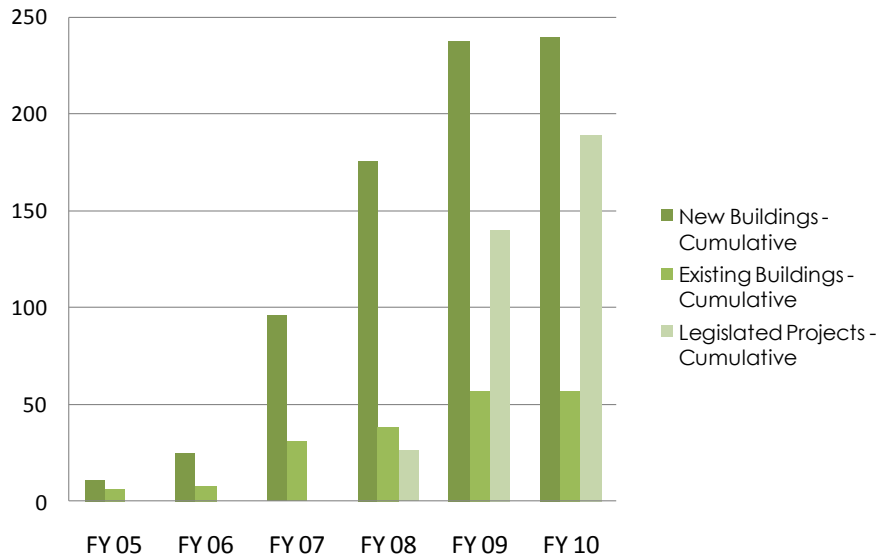
Source: Solidiance analysis, 2010.



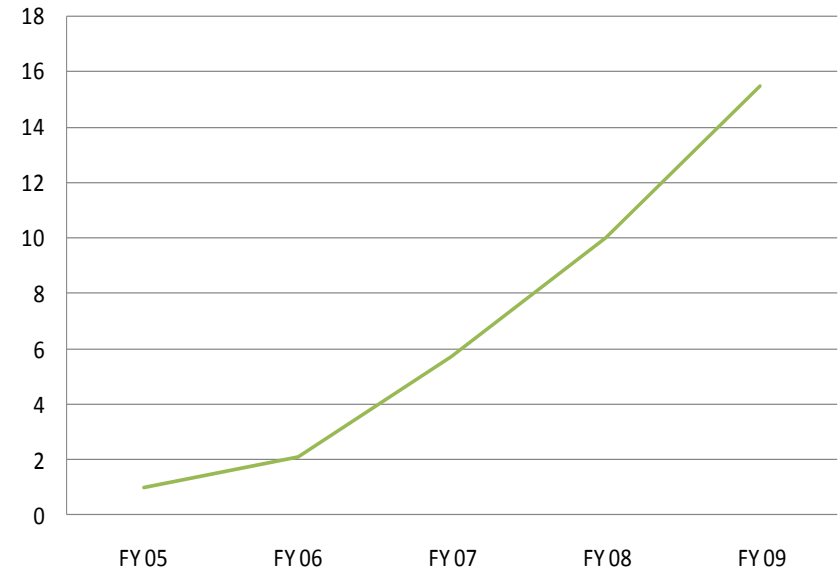


## 8% of Gross Floor Area (GFA) in Singapore currently under the BCA Green Mark Scheme.

### BCA Green Mark Certified Buildings in Singapore



### total GFA under the Green Mark Scheme in millions of square metres - Cumulative



The data is correct up to 30 Jun 2010. Fiscal Year 2010 started on the 1<sup>st</sup> of April 2010. Figures exclude non-buildings such as parks, districts, office interior, infrastructure as well as all overseas projects. The scheme currently has 7 recertified projects, which are excluded from the number of existing buildings as they have already been counted under New Buildings when they first applied. Currently, approximately 8% of Gross Floor Area (GFA) in Singapore comes under the BCA Green Mark Scheme.

Data source: BCA, 2010.



## 80% of buildings to achieve Green Mark certification by 2030, says IMCSD

In 2005, The Building and Construction Authority (BCA) launched the BCA Green Mark Scheme, a green rating tool developed in-house to drive Singapore's construction industry towards more environmentally friendly buildings.

The Green Mark assesses 5 key environmental areas namely, energy efficiency, water efficiency, environmental protection, indoor environmental quality and other green features. Buildings under the Green Mark can be classified into Certified, Gold, GoldPlus and Platinum.

In 2008, the Inter-Ministerial Committee on Sustainable Development (IMCSD) co-chaired by the Minister of National Development and Minister for Environment and Water Resources was set up to formulate a national strategy for the future of Singapore's sustainable development..

The sustainable development blueprint by the IMCSD identified 4 key priorities to achieve its vision of a 'livable, likeable and well loved city'. They are:

- Improve Resource Efficiency,
- Improve the Quality of our Environment,
- Build Up Our Knowledge and
- Encourage Community Ownership & Participation.

Initial efforts to promote environmental sustainability were channeled through the Green Mark system. BCA eventually launched the 1<sup>st</sup> Green Building Master plan in 2006 to spearhead the delivery of green buildings. The master plan concentrated on new buildings and those undergoing major retrofitting. With the IMCSD setting a target of having 80% of all buildings achieve Green Mark certification by 2030, the BCA unveiled the 2<sup>nd</sup> Green Building Master Plan in 2009 targeting existing buildings.



## how will lead demand be created for green building solutions in Singapore ?

According to the 2<sup>nd</sup> BCA masterplan, all new public sector buildings and those undergoing major retrofitting will need to achieve the high Green Mark standard - Platinum. Existing public sector buildings are also required to meet Green Mark GoldPlus Standards by 2020.

The green building industry is being encouraged by using government buildings to create lead demand as government buildings can afford a longer term pay back period. This will drive demand for 'greener' construction materials and supplies, and provide opportunities to test-bed and develop green building solutions in cooperation with government agencies.

In the 1<sup>st</sup> BCA masterplan, S\$ 20 million Green Mark Incentive Scheme provided monetary incentives for developers that achieved at least a basic certified green building rating. S\$32 million was distributed as part of the first master plan by the Ministry of National Development R & D Research Fund to 49 proposals developing cost-effective green building technologies and energy efficiency solutions.

Cost premium and payback periods estimates of Green buildings ( by award type)



BCA Green Mark Award type	Green cost premium (%)	Payback period (years)
Platinum	2 - 8	2 - 8
Gold Plus	1 - 3	2 - 6
Gold	1 - 2	2 - 6
Certified	0.3 - 1	2 - 5

Data source: BCA Business case for Green Buildings in Singapore, 2008.





## how is Singapore developing her green hub capabilities ?

18,000 green specialists will be trained at 'PMET (Professional, Manager, Executive and Technician) level over the next 10 years for the development, design, construction, operation and maintenance of green buildings, at the BCA academy, according to the second BCA master plan.

The second BCA master plan also awards additional gross floor area to developers that earn higher-tier Green Mark awards for their new buildings and reconstruction projects.

BCA will be collaborating with suitable partners on R&D and pilot projects that can provide energy savings of 50% or more efficiency. In addition, the feasibility of energy consumption disclosure by building owners is being explored.

### 6 strategic thrusts of BCA's 2<sup>nd</sup> Green Building Master Plan

**Strategic Thrust 1**  
Government taking the lead in embracing higher Green Mark ratings.

**Strategic Thrust 2**  
Incentives for private sector to accelerate greening of new and existing buildings.

**Strategic Thrust 3**  
Further development of the Green Mark Scheme and green building technologies.

**Strategic Thrust 4**  
Building industry capabilities through training and education.

**Strategic Thrust 5**  
Raising industry and public awareness to generate sustained demand. Profile Singapore as a hub for Green Building Development in the region

**Strategic Thrust 6**  
Setting minimum green standards

### National Environmental Agency (NEA) Incentives

- Energy Efficiency Improvement assistance scheme (EASe) provides up to 50% funding for companies to carry out detailed energy appraisals (energy assessments).
- Design for Efficiency scheme (Dfe) provides up to 80% funding or S\$600,000, whichever is lower, for large consumers of energy to conduct design workshops to design more energy efficient facilities.
- Grant for Energy Efficient Technologies (GREET) provides up to 50% funding, capped at S\$2,000,000 per project, to encourage owners and operators of industrial facilities to invest in energy efficient equipment or technologies.



## what are the opportunities in Singapore's green building industry ?

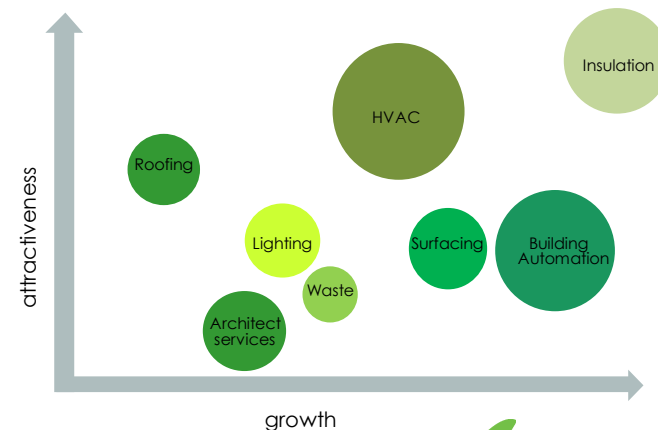
The burgeoning green building scene introduces new opportunities for building materials manufacturers and building professionals. Sectors which tackle energy efficiency and reduce energy loss are likely to lead the demand.

In tropical Singapore where air conditioning remains the biggest load on building energy requirements, small percentage improvements in HVAC efficiency and building envelope effectiveness can translate to significant cost savings.

Our interviews with industry experts indicate that, local M&E engineering designs and implementation, follow templates from American and European markets. Designing systems with the local conditions in mind and reducing sharp angles in piping systems can improve fluid dynamics in HVAC systems, hence, reducing energy wastage.

Opportunities in energy consulting of new and retrofit buildings are likely to improve. Solar photovoltaic technology is relevant for the Singaporean climate, though the current price and its long payback period is a deterrent, the potential of using renewable energy to reduce energy consumption from the grid is high.

Singapore green building opportunities matrix



Source: Solidance analysis 2010



## how do Singapore government agencies collaborate to develop local green industry ?

Building & Infrastructure Solutions (BIS) and Urban Solutions (US) departments within the EDB are significant to the green building scene here in Singapore. The BIS develops the green building industry while the Urban Solutions department test beds solutions for urban living in what is called 'living labs' which allow for large scale real-time testing of systems and technologies in a real life context on environments where people work and live in.

The construction industry while interested in the green building industry, is one that is traditionally risk-averse to trying new methods and materials. To encourage the green building industry, a 3 pronged approach is undertaken in a concerted effort by the EDB, BCA and other government agencies.

1. Broad-based legislation and inducements
2. Government buildings leading by example
3. Showcase installations and test bedding

BCA has formed a Green Mark Advisory Committee consisting of a consortia of experts to advise on developments on the BCA Green Mark programme and assessment criteria to be relevant and up-to-date and provide feedback on implementation of the Green Mark programme.

BCA's Green Mark Department consists of two sub-departments, Green Mark (New Developments) and Green Mark (Existing Buildings) which provides pre-consultation for reviews of building designs prior assessments for Green Mark Scheme. The pre-consultations provide guidance to developers and building owners to explore higher green building standards.

"There is greater awareness on 'green buildings' and the BCA Green Mark Scheme. A lot of this is still being done by personal passion. Increasingly, these concepts are being taught in schools and as part of professional training. It is part of an inexorable trend. Government agencies would like to move and move fast. But if agencies (bodies like EDB and BCA) move too hard and fast, the industry will not be able to keep pace and this would lead to short term spikes in cost. It is a difficult balance but one which we are aware of and try to tackle".

Toh Wee Kiang,  
Executive Director of BIS,  
EDB

Source: Solidiance Interview, 2010



## 'Living Lab' to develop Singapore into exporter of tropicalised urban solutions

### Living Lab

- The 'Living Lab' idea is the driving principle behind the Urban Solutions and Building and Infrastructure Solutions programs of the EDB.
- The scheme aim to develop Singapore into a low risk centre for companies to test and prove their solutions prior to exporting them to external markets.

### Urban Solutions

- This scheme aims "to catalyze the search for innovative technological answers to Singapore's own future challenges.
- The EDB actively seeks to work with companies to carry out research, development, demonstration and first adoption of cutting-edge products and services that solve urban challenges.
- The 'Living Lab' is realized by the creation of innovation platforms. These platforms include opening up existing infrastructure, changing policies and tying up companies with local partners to test, develop, adapt and export solutions.

### Test-Bedding

- EDB tries to match test beds with firms (for example, developers) which offer opportunities to realize economies of scale. The idea being, should the test bed be successful, there would be a ready market for the diffusion of the innovative solution.

Which city would be a good green building benchmark for Singapore?

"There is a reason why Singapore did not adopt the LEED system. Our goals and needs are different. ..To take somebody else's goal and put it here would not be appropriate. **We are very interested in adapting and 'tropicalising' urban solutions for our local climate.** This is something that Singapore needs, has targeted for and is guided by the long term sustainability goal of Singapore".

Leonard Lee,  
Head of the Urban Solutions Program  
EDB

Sources: EDB Factsheet 2009,  
Solidiance interviews and analysis, 2010.



## how can showcased installations in Singapore change mindsets ?

As most green building solutions developed in Europe and the U.S. are not for tropical climates it is important to develop local showcase installations to illustrate to the market and public that green buildings are not just theoretical possibilities.

Large scale test beds to test, learn and improve on the interaction between systems, ideally at precinct level (e.g. Clean Tech Park and Punggol Eco-Town) will allow consumers to engage with green buildings developments.

“Consumers are becoming more knowledgeable in their observations and demand. Purchasers are asking fundamental questions like: ‘How much do I save?, How much more efficient is this technology?, What is the tangible benefit to the environment and myself?’ So awareness is increasing in Singapore about green buildings. Consumers want to know more than a few years ago. Buyers are even asking who the architect is.”

Ashvinkumar Kantilal  
President  
Singapore Institute of Architects

Source: Solidiance Interview, 2010.



## what is crucial to the success of a green building project in Singapore ?

To tackle a green building project, developers need to subscribe to a holistic integrated view of the project. It is important to identify stakeholders and get them involved early on the project, right from the planning and designing stages. This is not a one-stop process, but rather a corroborative effort to achieve a feasible building blueprint. The integrated project team must understand the targets set for the building and come to a consensus on how this can be achieved given the conditions and constraints.

Projects teams ought to carry out design charrettes with key stakeholders to obtain input and advice from the different fields involved in a green building construction. Such charrettes allow for the various stakeholders to share expertise, troubleshoot and can improve building design.

It is crucial to appoint a competent project manager who can oversee the operations and management of teams required for tackling a green building project. This project manager would also be involved in the decision on design, selecting building methods and materials.

Often specialists like energy and green consultants are sought in the final stages of a building project. This makes implementation of solutions costly and cumbersome. It is advisable to engage such expert opinions in the design stages, ideally via design charrettes.

definition of charrette: a brief but intense workshop



## how keen are Singapore developers to build green ?

The construction industry here in Singapore is a highly competitive industry with several large-cap localized players.

Most of them are home-grown with decades of experience in the Singapore real estate development industry.

Developers in Singapore tend to be risk-averse and conservative, hence breaking in new ideas and materials is challenging.

The industry is highly cost sensitive and building materials manufacturers do find it difficult to market 'greener' materials which come with a higher price tag but better return on investment (ROI).

From our interviews with downstream players, it is evident that it is very common for developers/project owners to require a proven record of performance for components, technology, materials and building methods before they get interested.

Local developers are beginning to see the need for greener buildings. Corporate and Social Responsibility (CSR) initiatives from MNCs, strong governmental initiatives, increasing consumer interest, local resource scarcity are some of the reasons why developers are slowly gaining interest in the green building scene in Singapore.

Developers also indicated that they are getting onto the 'green building bandwagon' by default, as they realize that the construction industry is gravitating towards greener building developments and it is possible and feasible that green buildings would be a standard in years to come.

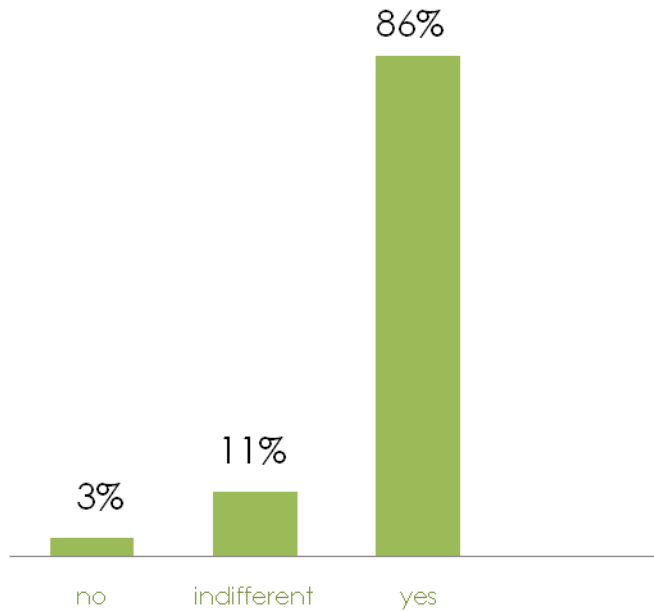
Developers are also beginning to explore green buildings ideas and methods as they might be the competitive advantage of the construction industry in the future.

Source: Solidiance analysis and interviews, 2010.

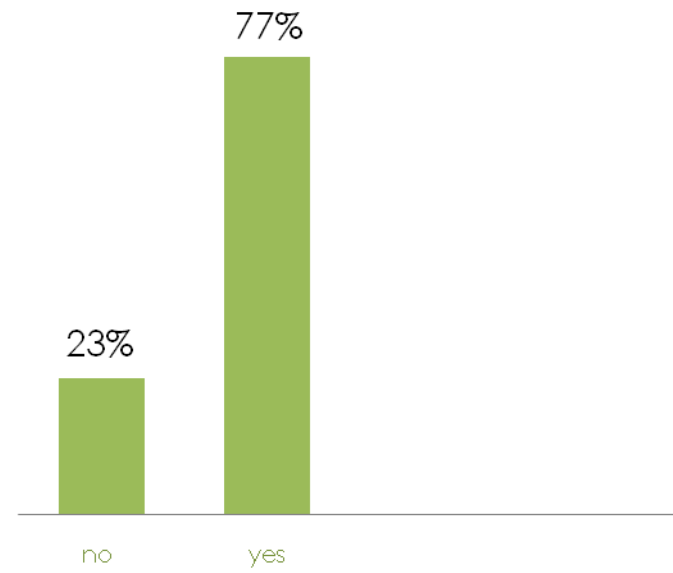


# how receptive is the Singapore property market to the renting & purchasing of green buildings ?

would you consider renting an office in a green building as an attractive option?



would you consider buying a green home?

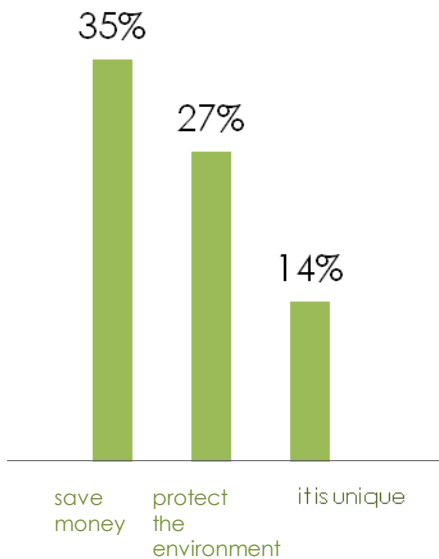


This public perception survey was carried out online for a period of 6 weeks between April 2010 and June 2010. The sample size of 370 consisted only of home owners, lessors and lessees or those who intend to purchase or rent a home in the next 3 years in Singapore. Only responses from those aged 25 and above were considered. The survey did not distinguish between nationality.

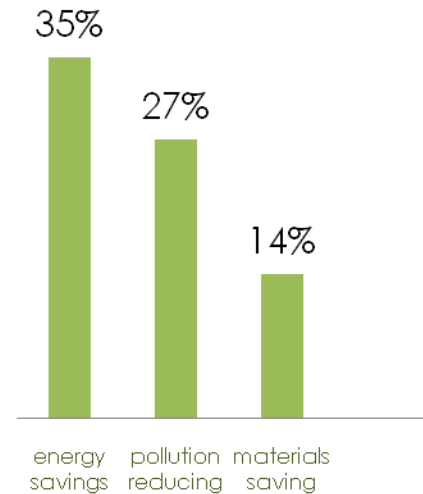


## why are green homes attractive to Singapore home buyers ?

top 3 reasons to purchase a green home



top 3 benefits of green buildings survey sample was most aware of

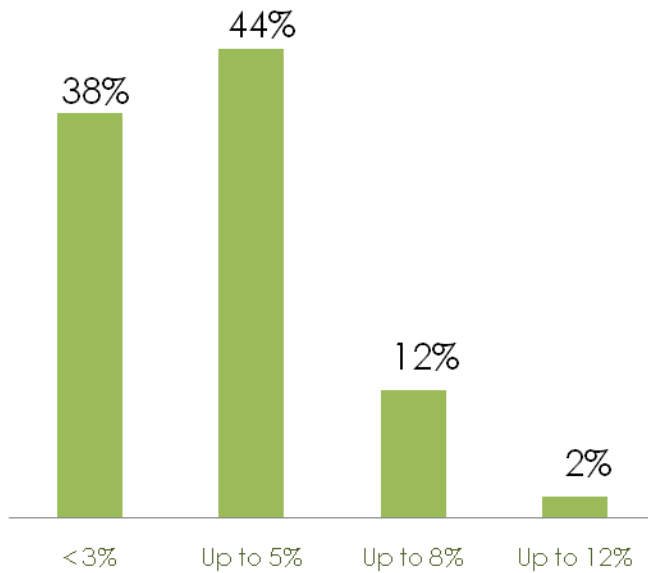


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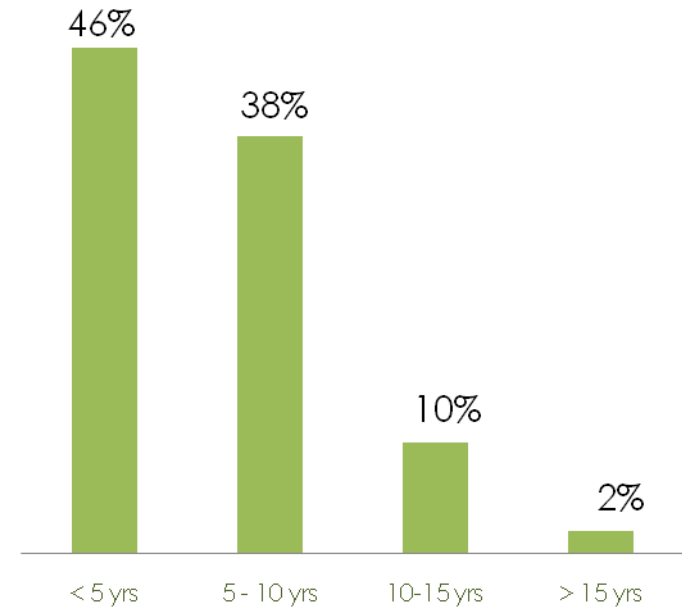


## what green premium are Singapore home buyers willing to fork out ?

the maximum premium homebuyers are willing to pay for their green home



acceptable break even period for the green premium homebuyers are willing to pay

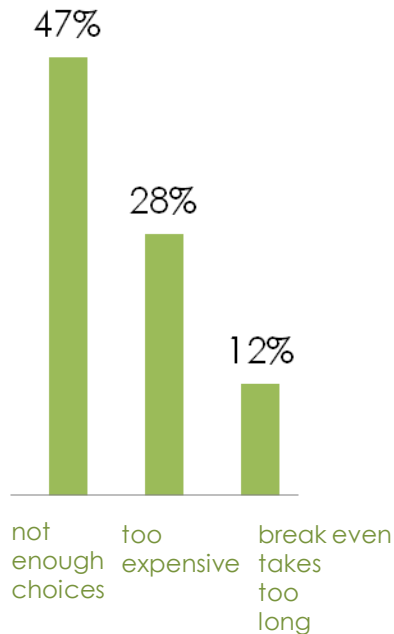


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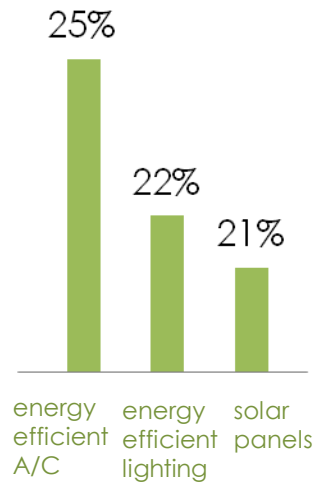


## Singapore homebuyers want more green choices and energy efficient utilities

top three reasons not to buy a green home



top three methods identified to make a building greener



“Awareness to such subtle energy efficiency issues whilst noticed in the States and parts of Europe has yet to spread to the Singaporean market. If we are to make improvements to building energy efficiency, we should not feel uncomfortable in re-looking our common building designs and methods. Tried and tested they might be. But that is no excuse to ignore what the data on building energy efficiency is showing.”

Lee Eng Lock  
General Manager, Energy Division  
Trane Singapore

This public perception survey was carried out online for a period of 6 weeks between April 2010 and June 2010. The sample size of 370 consisted only of home owners, lessors and lessees or those who intend to purchase or rent a home in the next 3 years in Singapore. Only responses from those aged 25 and above were considered. The survey did not distinguish between nationality.



## what is the biggest energy drainer in Singapore?

Air-conditioning is the biggest energy drainer in buildings in Singapore, over-installation and mismanagement of air-conditioning is a significant avenue of energy wastage in Singapore.

“It is not uncommon in Singapore to see commercial buildings intentionally or unintentionally blasting Air Condition outdoor to attract by-passers. This practice ought to be condemned by consumers, who are paying for this wasted energy to cool the street, and by the relevant authorities. **We should learn or be forced to manage existing resources better”.**

Damien Duhamel  
Managing Partner, Asia  
Solidiance

While spikes in energy demand may only last from 20 minutes to an hour on any given day, building engineers are pressured to ‘overkill’ with an overcapacity in cooling plants and air conditioning systems to ensure a comfortable environment in buildings.

### plugging the leak of energy wastage

- Insulation (sound building envelope)
- Increase energy efficiency of equipment and fittings
- Designing plumbing to aid in the fluid dynamics of cooling plants (angling junctions of piping to ensure smooth flow of coolant fluids)
- Allow for sufficient space between cooling towers to increase efficiency
- Variable speed drives can vary energy input into running building systems according energy demand (output)

### reducing energy demand

- Reducing ‘overkill’ in installed capacity of cooling plants in buildings
- Renewable energy sources like photovoltaic
- Taking advantage of natural ventilation and lighting

Source: Solidiance interviews and analysis, 2010.



# SWOT analysis of Singapore's green building industry

## strengths

- Strong governmental support via the IMCSD and its recommendations
- Strong incentives available to encourage the construction industry to consider green building developments
- Fast developing BCA Green Mark Scheme. Small size of country makes it easier to encourage and enforce buildings standards
- Ongoing effort to test bed urban solutions for urban living (EDB)
- Openness of government agencies to learn from global best practices
- Local academic programs to educate 'Green collar' professionals for the burgeoning industry
- Significant operational expense (Opex) savings from well-developed green building projects

## opportunities

- 'First mover' opportunities for firms, developers and architects to develop expertise and competitive advantages in a new field
- Strong demand for retrofits from existing public buildings, leading to demand for 'greener' construction materials and supplies
- Metrics to be developed to better monitor building performance
- Possibility to achieve economies of scale on urban solutions with public housing (HDB) developments
- Monetary incentives to reduce cost and risk of R & D in selected fields to make Singapore a 'sustainable city' for the future
- Possibility to test-bed and develop green building solutions in cooperation with government agencies

## weakness

- Lack of readily available expertise
- 'Wait and see' attitude of stakeholders in the construction industry
- Ignorance and lack of knowledge on the need and benefits of green buildings
- General perception that green buildings would be prohibitively expensive, Lack of strong private consumer demand
- Low industrial, commercial and public awareness on arresting energy inefficiency (situation is improving though)
- Short term focus on up front cost ( Capex) by the industry players versus long term amortization. Market is heavily interested in quick returns ( short payback period)
- Market is unsure whether personnel responsible for evaluating tenders for projects have green building expertise

## threats

- Other Green Building Indexes present in the region, but these regional entities are collaborative in nature and mostly localized in their influence (threat to the BCA Green Markscheme is minimal)
- Relatively few green building materials manufacturers in the region
- Developers are beginning to see the increasing need for green developments, competition for projects is low but likely to intensify

Source: Solidiance interviews and analysis, 2010.



## overview and summary

In summary, Singapore does face a fair number of challenges, but is addressing it systematically.

Singapore has a shortage of expertise in the green building scene as the demand for such professionals is likely to increase in the future. Steps have been taken to increase the supply of green building professionals via courses carried out in the BCA Academy.

As most building related products and materials are imported from out of Singapore, a robust system is required to assess such materials to support the sustainable objective.

The "Singapore Green Building Product" is the trademarked green building product certification system developed and operated by the SGBC. The scheme complements the Singapore's Building and Construction Authority's (BCA) Green Mark assessment scheme for green buildings and aims to provide a holistic and comprehensive certification approach.

Firms tend to prefer the comfort of short term capital spending reduction over longer term investments which can reduce short term profitability. This short term view is also prevalent in the construction materials industry. Interviews indicate that this is exacerbated by the structure of the industry whereby a main constructor sub-contracts projects to smaller contractors. Often a down payment of 10-40 % is paid to sub-contractors to cover material and operating expenses. Pressured to reduce costs, sub-contractors tend to choose cheaper materials.

Our interviews with industry experts in the field of HVAC (Heating, Ventilation and Air-conditioning) indicate that while more efficient HVAC systems with a payback period of about 5 years do exist in the Singapore market, the industry is reluctant to adopt as such advance systems come at a premium. Government incentives could be a way to alleviate the current 'catch 22' problem by changing the mindsets of owner-developers. Greater awareness and industry training can set in motion the changes that required to put in a place a green building paradigm.



## conclusion and key takeaways

### government targets

The green building scene in Singapore offers much promise, being driven actively by the Inter-Ministerial Committee on Sustainable Development (IMCSD) and its lofty target of having 80% of all buildings in Singapore achieve Green Mark certification by 2030.

All new public sector buildings and those undergoing major retrofitting will need to achieve the high Green Mark standard - Platinum.

Existing public sector buildings are also required to meet Green Mark Gold<sup>Plus</sup> Standards by 2020.

### incentives

The government of Singapore through concerted efforts of its various agencies has instigated interest in the green building arena via generous incentives.

These incentives cannot be perpetual.

The industry at some point would need to take the lead to push the idea of green buildings in Singapore further.

### selling points

General public interest in greener buildings and their environmental and financial benefits.

Green buildings are viewed as a 'lifestyle' product.

Global blue-chip companies with a strong environmental focus and Corporate and Social Responsibility (CSR) programs lease offices in greener buildings to boost corporate images.

Several developers indicated that building greener buildings could be the competitive advantage of the market tomorrow in Singapore.

### cost considerations

The 'green building premium' can be reduced significantly if developers take an integrated, holistic approach to the building and design process.

Competent designers and project managers can design and build green buildings without increasing capital expenditure.

Green buildings can lower operating costs throughout the lifetime of the building. Increasingly, prices of green building materials would decrease as manufacturers enjoy economies of scale.

# about the Singapore Green Building Council

an industry led initiative



The SGBC propels the Singapore building and construction industry towards environmental sustainability by promoting green building design, practices and technologies, the integration of green building initiatives into mainstream design, construction and operation of buildings as well as building capability and professionalism to support wider adoption of green building development and practices in Singapore. Its work will complement and support the government's efforts to accelerate the greening of our buildings by 2030. At the same time we will be able to share our knowledge with other countries in our climatic zone.

"The future of green building in the near term – and we are looking at the next five-years – looks promising: a growing number of homeowners and commercial tenants are driving demand for green buildings, and this is evident in the progress and expansion of Green Mark criteria.

Also, the international presence of SGBC can now be said to be on firm foundations. *At a domestic level, I think we can agree that it now makes a more attractive case for companies to jump on the 'green' bandwagon so as to gain themselves valuable business partnerships.*

Finally, as stakeholders, I think everyone have a capacity, independent of a time-frame, to contribute to Singapore's green movement, and I am hopeful that we can make a concerted effort towards green buildings."

Lee Chuan Seng  
President  
SGBC

Source: Issue 01 Sustainable  
Architecture – A BCA-SIA Publication

## Key focus areas of the SGBC



Profile Singapore as a leading Sustainable Hub in the tropics

Enhance Professionalism and Knowledge in Sustainable Development

Dedicated Certification Body for Green Building-related Products and Services

Source: SGBC 2010



Solidiance is a marketing and growth strategy consulting firm with focus on Asia Pacific. We are devoted to working side-by-side with construction industry clients to outpace the competition, close gaps in growth and deliver breakthroughs in performance and profitability. Our Asia focus provides our clients with a better understanding of intrinsic green and urban development regional issues.



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Commercial



Industrial



Wind



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