



# Perception towards Green Buildings in Singapore

F R O S T  S U L L I V A N

A Frost & Sullivan Summary Report

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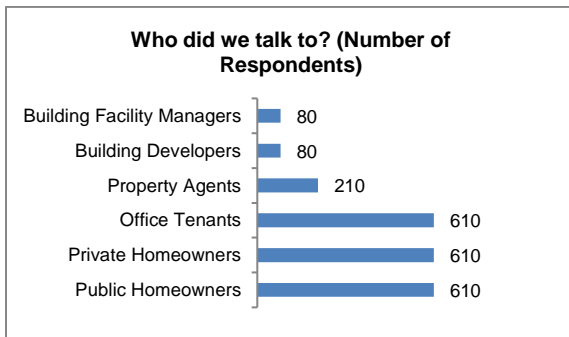
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## METHODOLOGY

In 2016, the Building and Construction Authority, Singapore (BCA) commissioned Frost & Sullivan to conduct a study to understand how key stakeholders in Singapore, namely homeowners, property agents, developers and facility managers perceive green buildings and the Green Mark scheme, with the objective to identify the benefits, challenges and key issues of green buildings and premises.

A comprehensive survey study was conducted by collecting feedback through five focus group discussions with in-depth responses from 46 respondents and a quantitative survey with 2,157 responses - total of 2,200 respondents (refer to figure below).



## KEY FINDINGS

Across the board, the stakeholders agreed that there were both tangible and intangible benefits of working / living in green buildings and premises.

Based on the study, we analysed feedback of various stakeholders on their perception related to green buildings. The sections below indicate the feedback by each of the segment

### PERCEPTION OF HOMEOWNERS

We find that homeowners<sup>1</sup> (for public or private housing facilities) understand the benefits of green buildings and are even willing to pay more to own home in a green building.



**94%**

*of public homeowners agree that green buildings have benefits*

**91%**

*of private homeowners agree that green buildings have benefits*

The homeowners perceive that green buildings result in lower utility bills and reduced environmental impact. Other benefits attributed by the homeowners to green buildings included better health benefits by living in a green building, and better resale value of the green buildings.

When asked if the respondents agree that 'green building enables energy saving, hence lowers utility bills and operational cost', the homeowners interviewed agreed with the statement.

indoor air quality was attributed as the top reason for these health benefits – at least 86% of the homeowners mentioned indoor air quality as top reason for health benefits.

The homeowners also mentioned that they are aware that landscaping and green features help to fetch a better resale value for a green building in the market. **73%** of public homeowners and **70%** of private homeowners agreed that 'green building offers better resale value'. **78%** of the homeowners mentioned that BCA's Green Mark certification for their building help with value retention of their property.

The homeowners, overwhelmingly, agreed that green buildings contribute towards environmental protection.

**93%**

*of public homeowners agree that green buildings lead to energy savings and saves cost*

**90%**

*of private homeowners agree that green buildings lead to energy savings and saves cost*

They elaborated that the usage of solar panel, energy efficient appliances and having other energy saving features in green buildings contribute greatly to lower utility bills and operational costs. 72% of the homeowners prefer the use of fans in their homes as compared air-conditioners, as it helps in energy savings.

Similarly, **87%** of public homeowners and **85%** of private homeowners agreed that living in a 'green building provides health benefits'. Better

**93%**

*of public homeowners agree that green buildings contribute to environmental protection*

**94%**

*of private homeowners agree that green buildings contribute to environmental protection*

Other useful features of green buildings, according to homeowners, were:

- Waste Segregation – **78%** of respondents found recycling bins useful and practical
- Setting their air conditioner to 25°C – **71%** of the respondents found the temperature comfortable to stay
- Reliability of equipment – **82%** of respondents mentioned that equipment and technology used is reliable

When asked if they are willing to pay more to buy a home in a Green Mark building as compared to one in a non-Green Mark building, **54%** of the homeowners mentioned that they would be willing to pay a premium of

**bills and operational cost**, **94%** of the office tenants interviewed agreed with the statement.

**86%** of the office tenants also highlighted that working in green buildings leads to better



between **3% and 4%** for a Green Mark building, due to the reasons mentioned above.

### PERCEPTION OF OFFICE TENANTS

Similar to the homeowners, office tenants<sup>2</sup> also believe that green building lead to benefits. They prefer working in green buildings due health and well-being benefits.

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**94%**

*of office tenants  
agree that green  
buildings have  
benefits*

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When asked if they agree that **'green building enables energy saving, hence lowers utility**

health benefits for their employees. This was attributed to better indoor air quality by 87% of these respondents.

These findings affirm the recent findings from a research study jointly conducted by BCA and NUS on Indoor Environmental Quality which concluded that Green Mark buildings provided healthier indoor environment than non-Green Mark buildings. In addition, occupants in Green Mark buildings are more satisfied with their indoor environment and have less risk of experiencing sick building syndrome symptoms such as unusual fatigue, headache and irritated skin.

**79%** of office tenants mentioned that working in green buildings lead to higher productivity and efficiency amongst the employees. This was attributed to interior design, landscaping and natural features of green buildings.

The respondents also mentioned that having an office in green building has led to an

increase in the number of job applications – **64%** of office tenants mentioned that green building helps to attract talents to their company.

**87%** of office tenants agreed that they are comfortable to work in offices where the air-conditioner temperature is set at 25°C, while **84%** of office tenants agreed that technologies in green buildings such as motion sensors in toilets, water saving features etc. are reliable to use.

At the same time, **77%** of office tenants agreed that an advertisement on a property or office with BCA Green Mark certification would increase their interest in it.

Due  
to  
these





benefits, office tenants are willing to pay an average of **3.5%** premium in lease for an office in a Green Mark certified building, as compared to one that is not certified. Typically, they expect to generate returns on their higher investment in 7 to 8 years.

## PERCEPTION OF PROPERTY AGENTS

We observe that property agents across Singapore recognise that prospective buyers see the value of green buildings.

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**89%**

*of property agents  
agree that  
prospective buyers  
recognise that  
green buildings  
have benefits*

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80% of property agents interviewed agreed that when developments are marketed as green buildings, it will help to improve sales. In addition, 83% of them agreed that developers have a preference to invest in/ purchase/ rent green development over non-green development. The awareness of BCA Green Mark schemes is high amongst property agents - **76%** of property agents are aware of BCA Green Mark.

Even though, **72%** of property agents agreed that a green building does not cost much more than a non-green building, they also highlighted that prospective buyers are willing to pay up to 7% higher for a home or office in green building, as compared to one in a non-green building.

Property agents are an essential market maker in the industry, and are considered trustworthy channel of information and advice by prospective buyers. To ensure that prospective buyers understand the importance of green buildings and homes, BCA has collaborated with the Singapore Green Building Council (SGBC) and Singapore Estate Agents Association (SEAA) to incorporate content about BCA Green Mark in one of their courses for property agents.

Other stakeholders, i.e. Developers and Facility Managers, understand the benefits better and expect that the potential buyers will graduate towards green buildings over time. 72% of the developers are willing to pay 5% more to invest in green buildings, depicting their confidence in the market.

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*“BCA is accelerating the green building agenda by engaging building tenants and occupants more actively to drive behavioural change on energy consumption, with a focus on health and well-being. The findings of the survey will help us better fine tune our Green Mark schemes and outreach efforts so that there is greater awareness and demand for green buildings.”*

*- Mr. Hugh Lim, Chief Executive Officer of BCA*

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## **CONCLUSION**

All of the respondents in the study consider green buildings as a key weapon against the climate change and a tool to meet Singapore's goal towards achieving our national pledge under Paris Climate Agreement (COP21), with 87% agreeing that green buildings lead to reduced environment impact.

Over 90% of the stakeholders interviewed agree that green building have substantial benefits in terms of reduced utility bills (88% of respondents), providing health benefits (85% of respondents) and ensuring better productivity and talent attraction (75% of respondents). These benefits result in the perception that green building is able to fetch higher resale value and it is good for value retention of the property, across all stakeholders. The findings from the survey affirm the keen interest that residents in Singapore have for green buildings and their awareness of the benefits and the value that green buildings brings.

## **ABOUT FROST & SULLIVAN**

*Frost & Sullivan, the Growth Partnership Company, works in collaboration with clients to leverage visionary innovation that addresses the global challenges and related growth opportunities that will make or break today's market participants. For more than 50 years, we have been developing growth strategies for the global 1000, emerging businesses, the public sector and the investment community. Is your organization prepared for the next profound wave of industry convergence, disruptive technologies, increasing competitive intensity, Mega Trends, breakthrough best practices, changing customer dynamics and emerging economies?*

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## **ABOUT BUILDING AND CONSTRUCTION AUTHORITY (BCA)**

*The Building and Construction Authority (BCA) of Singapore champions the development of an excellent built environment for Singapore. BCA's mission is to shape a safe, high quality, sustainable and friendly built environment, as these are four key elements where BCA has a significant influence. In doing so, it aims to differentiate Singapore's built environment from those of other cities and contribute to a better quality of life for everyone in Singapore. Hence, its vision is to have "a future-ready built*

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<sup>1</sup> Public homeowners refer to the owners of HDB flats, while private homeowners are owners of condominiums.

*environment for Singapore". Together with its education arm, the BCA Academy, BCA works closely with its industry partners to develop skills and expertise that help shape a future-ready built environment for Singapore. For more information, visit [www.bca.gov.sg](http://www.bca.gov.sg)*

## **ABOUT BCA GREEN MARK SCHEMES**

*The BCA Green Mark (GM) scheme was rolled out in 2005, and serves as a leading green building rating system in the tropics and sub-tropics. To date, more than 33% of the buildings in Singapore have been 'greened', and Singapore is on track to meet the national target of greening 80% of all buildings by 2030. More details [here](#)*

## **ENDNOTES**

<sup>2</sup> Office tenants refer to managers who make decisions about office leasing, and team members who are involved in such decision-making processes.



Auckland  
Bahrain  
Bangkok  
Beijing  
Bengaluru  
Bogotá  
Buenos Aires  
Cape Town  
Chennai  
Colombo  
Delhi/NCR  
Detroit

Dubai  
Frankfurt  
Iskander Malaysia/Johor Bahru  
Istanbul  
Jakarta  
Kolkata  
Kuala Lumpur  
London  
Manhattan  
Mexico City  
Miami  
Milan

Mumbai  
Moscow  
Oxford  
Paris  
Pune  
Rockville Centre  
San Antonio  
São Paulo  
Seoul  
Shanghai  
Shenzhen  
Silicon Valley

Singapore  
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Tel Aviv  
Tokyo  
Toronto  
Warsaw  
Washington, DC

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