

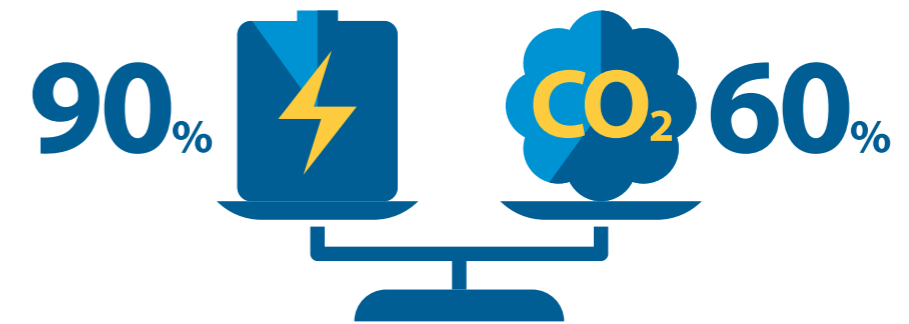
Hong Kong: Green Building in

ACTION



Hong Kong's Unique Built Environment

Significance of Buildings



Our activities in buildings account for **90% electricity consumption** or **60% greenhouse gas emissions**

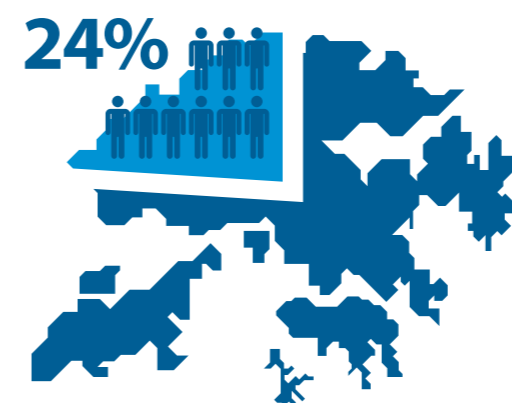
High Population Density



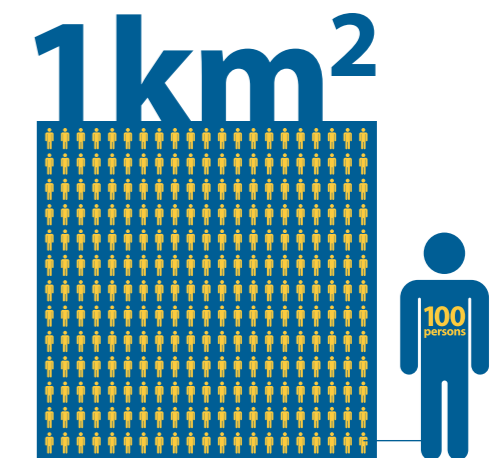
42,000+ buildings in private sector



8,000 high-rise buildings and skyscrapers¹

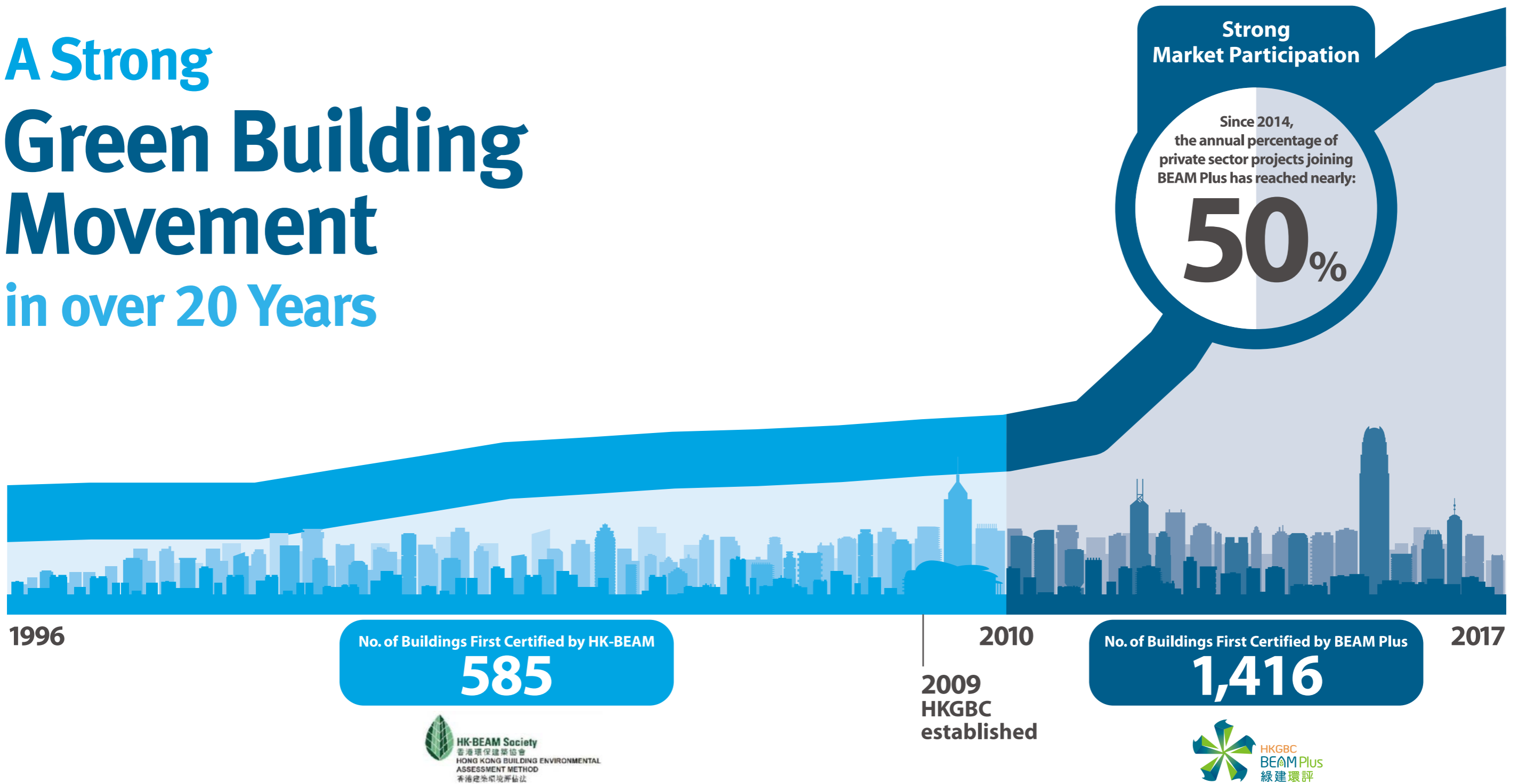


People live and work in
24% of Hong Kong's total area



Average population density of built-up areas
27,330 persons/km²

A Strong Green Building Movement in over 20 Years



Aiming High

	Registered	Certified*
No. of Buildings	5,004	2,001
No. of Projects	1,301	624
GFA (m ²)	40.2 million	23.4 million

* Certified means Bronze or above



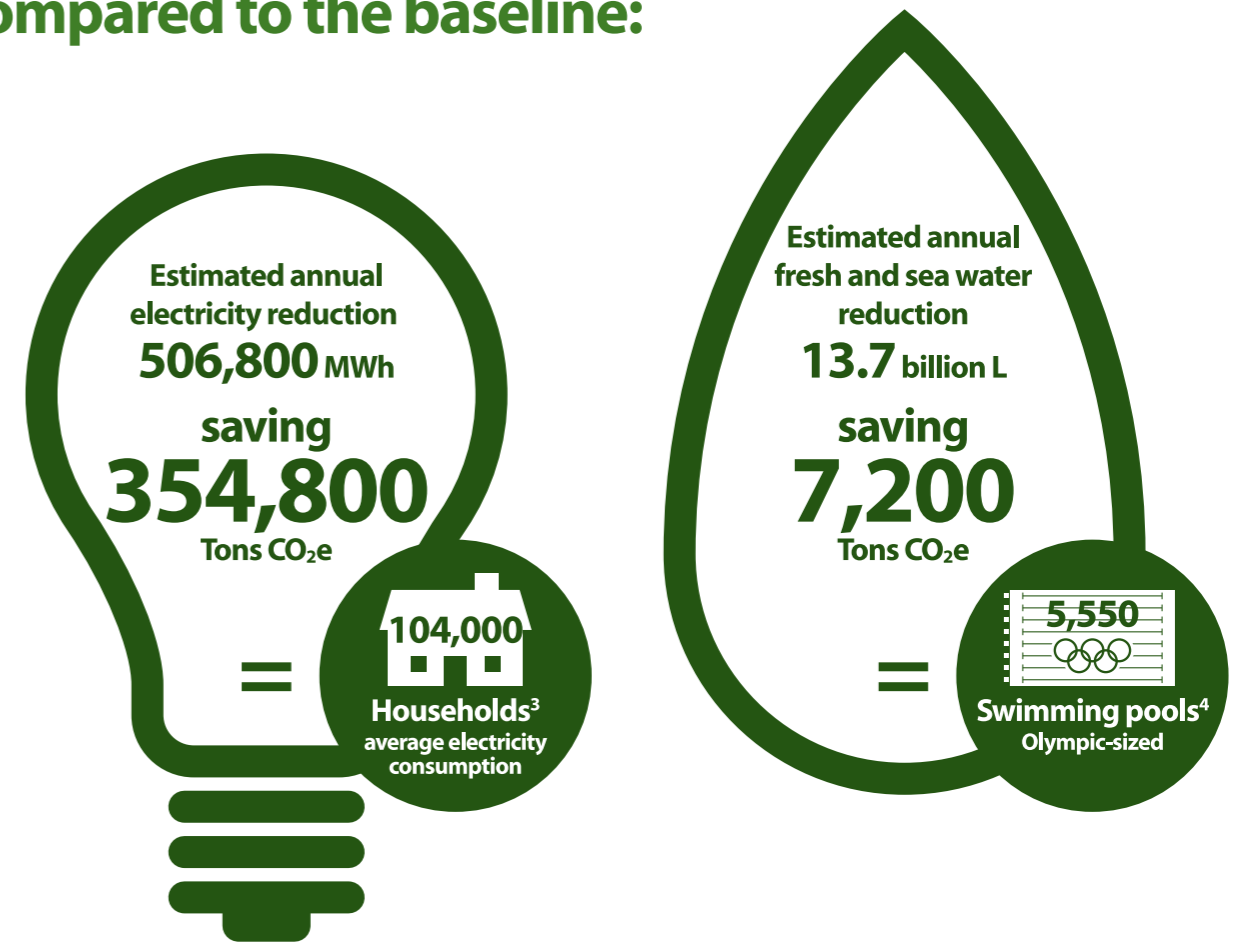
of HK-BEAM and BEAM Plus certified projects have achieved Platinum or Gold rating.

BEAM Plus and GFA concessions

Designed to foster a quality and sustainable built environment, and provide an effective measure to promote green building in Hong Kong, certification by BEAM Plus has been one of the prerequisites for the granting of gross floor area (GFA) concessions for certain green and amenity features in new building projects since April 2011. Along with other requirements set out in the Sustainable Building Design Guidelines, the total concession granted to listed features is capped at 10%.²

Combating Climate Change and Enhancing Liveability

Total saving of BEAM Plus assessed projects
compared to the baseline:



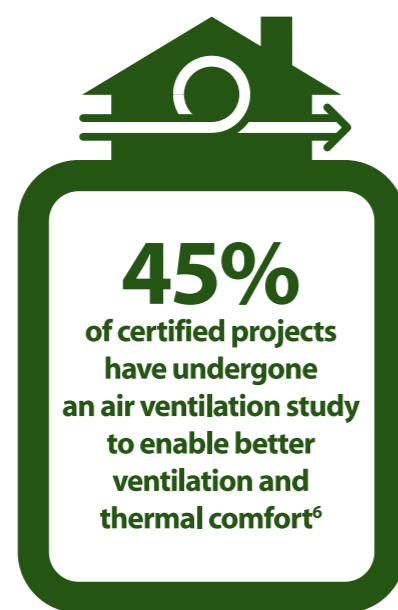
Total estimated carbon emissions
saved each year:

362,200
Tons of CO₂e

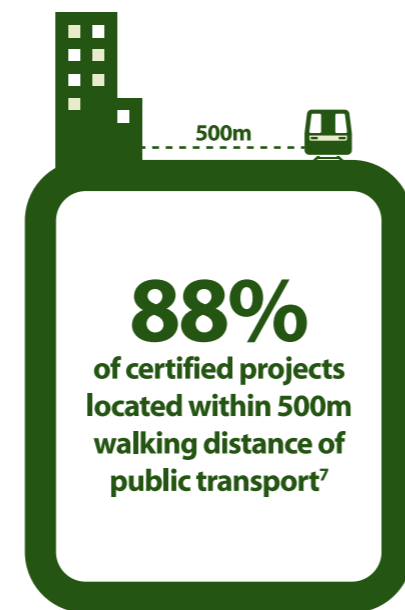
= 15.7 million trees planted

Liveability and a Sustainable Lifestyle

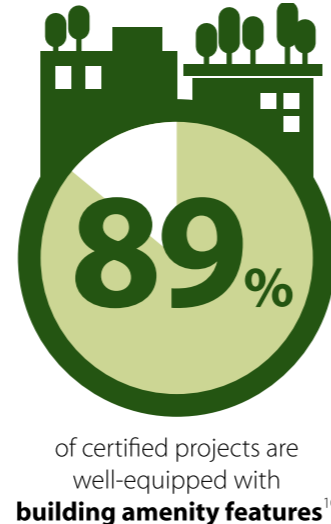
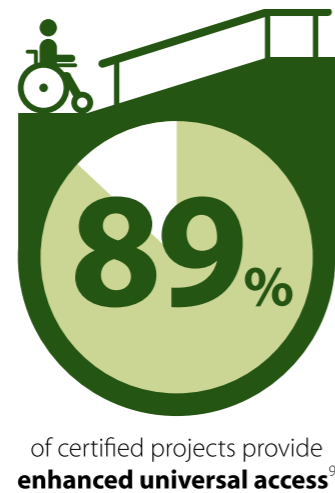
Pleasant Environment



Walkability and Mobility



Community Facilities and Amenities



Health and Wellbeing

Excellent Indoor Environmental Quality



Biophilia and Daylight Design

Humans' instinctive bond to nature offers opportunities in interior design to create a positive impact on peoples' physical and mental health. In offices that cannot enjoy views of nature, greenery can be introduced by using indoor plants and rooftop gardens. Many modern interior spaces also make good use of natural light, which enhances user comfort and reduces the use of energy for lighting.



Office of the Printing Division, Government Logistics Department

Better Places for People

The World Green Building Council's 2014 global report *Health, Wellbeing and Productivity in Offices* raised awareness of health and wellbeing issues by outlining evidence that links office design to occupants' health and productivity. It also set out a framework for organisations to measure how their buildings impact on their most valuable asset, namely their employees.



Conservation International Hong Kong: Green Sky

In 2015, the WorldGBC launched its two-year Better Places for People – Global Campaign to ensure that these principles could be taken forward beyond just the office sector. The HKGBC was actively involved in this initiative, providing input and advice as well as business case studies. To date, three more reports have been launched to showcase the importance of indoor environmental quality in retail environments, and how best practice examples of healthy, green offices can deliver tremendous new business value.

Existing Buildings: Challenges and the Way Forward

Taking up a very large proportion of Hong Kong's current building stock, existing buildings play a key role in Hong Kong's transformation into a low carbon metropolis.

Over **42,000** existing buildings in Hong Kong, offering massive potential for energy savings

Potential reduction of

52%

in absolute electricity consumption compared to a Business-As-Usual (BAU) scenario¹³

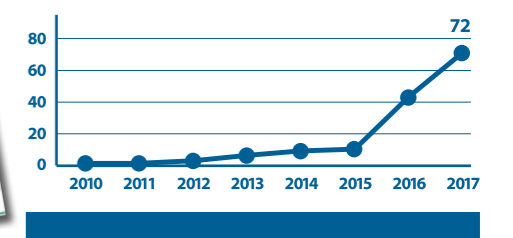


BEAM Plus Existing Buildings V2.0

- Launched in March 2016
- Covering the management, operation, maintenance and improvement of all types of existing buildings of all ages
- Comprehensive Scheme: assessing the overall performance of a project in either one-step or step-wise assessment
- Selective Scheme: assessing individual aspect of the project with a certificate issued for each assessed aspect



Cumulative No. of Registered EB Projects



Facilitating Market Transformation



HK BEST

Designed for office occupants and commercial buildings, the HKGBC Benchmarking and Energy Saving Tool (HK BEST) provides an independent marking scheme as well as identifying opportunities to improve energy intensity and efficiency for tenants and building owners with guidance.



HK G-PASS

Without doubt, the use of green building materials helps reduce the resource consumption of buildings. The HKGBC Green Product Accreditation and Standards (HK G-PASS) certifies green building products to encourage stakeholders in the building industry to participate in green procurement.



Potential energy saving identified:

13 million kWh
= 8% of central air-conditioning energy saving

ACT-Shop

The HKGBC's ACT-Shop is a brand new concept in Hong Kong. It seeks to nurture and strengthen industry competence in retro-commissioning, and to promote the adoption of knowledge-based energy-management best practices.

18

buildings from

12

leading developers in Hong Kong

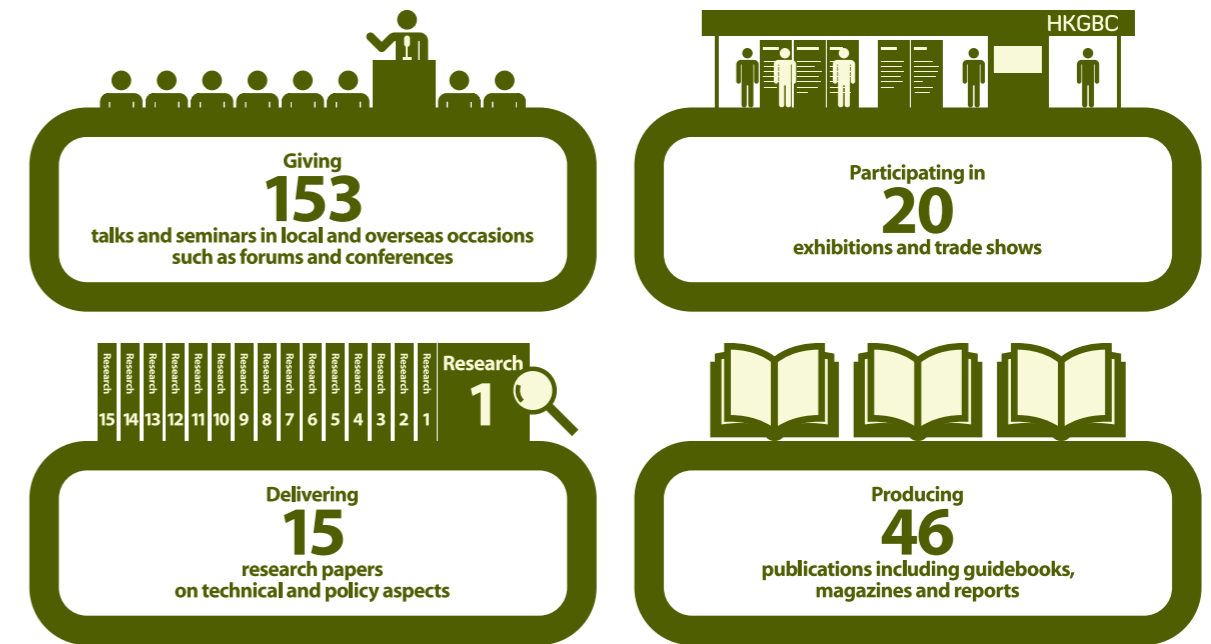
= **1.7 million m²**

building internal floor area

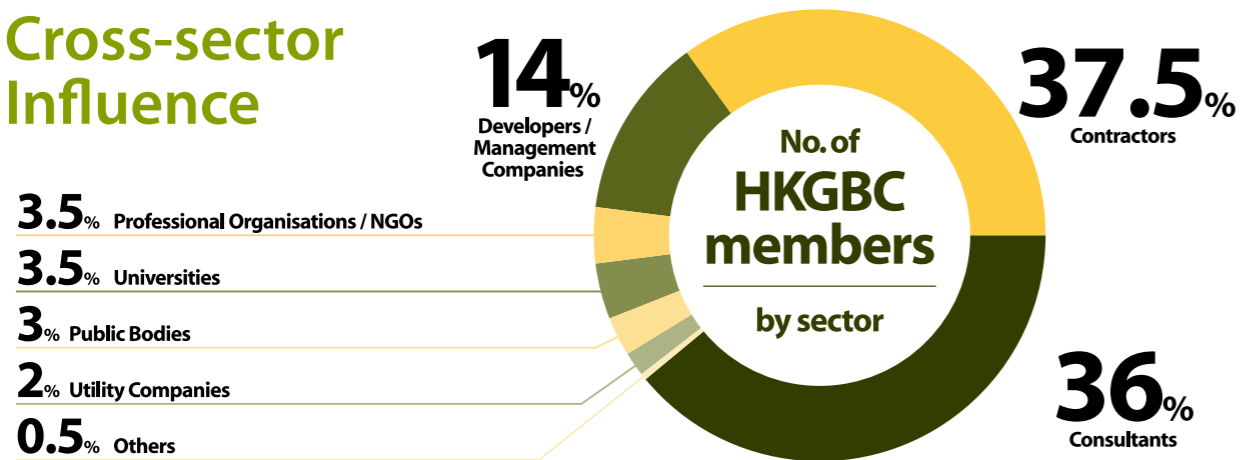
Turning Engagement into Impact

To drive Hong Kong's transformation into a sustainable built environment, it is essential to bring the Government, industry, academia and the public together. As an overarching organisation in the green building community, Hong Kong Green Building Council strives to take the lead in turning the valuable network into real impact.

Since its establishment in 2009, the HKGBC has been spreading the importance of green building at home and abroad through:



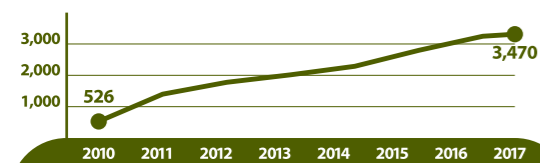
Cross-sector Influence



Building Competence

No. of green building practitioners

No. of training hours



3,470

green practitioners now serve the green building industry, with qualifications related to BEAM Plus and HKGBC schemes¹⁴



>200,000

training man-hours of mandatory and general CPD activities were undertaken by BEAM Practitioners in Hong Kong during 2012-2017¹⁵



"My Green Space" Green Building Competition for Schools

- Held annually since 2011
- Encouraging students to present their creative ideas on applying green building concepts in real-life built environments, and to develop their ideal green spaces.

Hong Kong Green Shop Alliance

- Hong Kong Green Shop Alliance was established in 2016
- Fostering collaboration between landlords and shop tenants in going green and combating climate change.
- There are also long-term plans to expand the Alliance to cover even more stakeholders in future, such as office occupants.

Hong Kong Green Building Week

- First launched in 2013 with Construction Industry Council
- An annual territory-wide campaign to encourage the public to live a greener life and learn more about local green building development through a series of educational programmes.

Reference

Unless otherwise specified, the data and statistics used in this publication are referring to projects under BEAM Plus assessment scheme only and updated as of 31 Dec 2017.

1. High-rise buildings are defined as a multi-story structure between 35-100 meters tall, or a building of unknown height from 12-39 floors. (Emporis, <http://www.emporis.com/building/standard/3/high-rise-building>)
Skyscrapers are defined as a multi-story building at least 100 meters tall. (Emporis, <http://www.emporis.com/building/standard/75/skyscraper>)
2. Buildings Department, Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (APP-152): Sustainable Building Design Guidelines, <http://www.bd.gov.hk/english/documents/pnap/APP/APP152.pdf>
3. The average three-person household electricity consumption in Hong Kong is about 405 kWh per month. (Electrical and Mechanical Services Department, Hong Kong Energy End-use Data 2017, https://www.emsd.gov.hk/filemanager/en/content_762/HKEEUD2017.pdf)

Unit electricity consumption of fresh water and sea water are 0.575 kWh/m³ and 0.389 kWh/m³ respectively. (Water Services Department, Water Services Department Annual Report 2016/17, https://www.wsd.gov.hk/filemanager/common/annual_report/2016_17/en/index.html)

Average unit electricity consumption of sewage treated is 0.2716 kWh/m³. (Drainage Services Department, Drainage Services Department Sustainability Report 2016-17, https://www.dsd.gov.hk/Documents/SustainabilityReports/1617/common/dsd_full_report_2016_17.pdf)

4. The capacity of an Olympic-sized swimming pool is 2,500,000 L, assuming a nominal depth of 2 m. (FINA Facilities Rules 2017-2021, https://www.fina.org/sites/default/files/2017_2021_facilities_06102017_full_medium.pdf)
5. The dimension of the pitch area of Hong Kong Stadium is 130 m x 74 m. (Leisure and Cultural Services Department, <http://www.lcsd.gov.hk/en/stadium/hks/facilities.html>)
6. Achievement rate of credit SA8c of BEAM Plus New Buildings (V1.2)
7. Achievement rate of credit SA2b of BEAM Plus New Buildings (V1.2)
8. Achievement rate of credit SA3b of BEAM Plus New Buildings (V1.2)
9. Achievement rate of credit IEQ22 of BEAM Plus New Buildings (V1.2)
10. Achievement rate of credit IEQ23a of BEAM Plus New Buildings (V1.2)
11. Achievement rate of credits IEQ6 and IEQ7 of BEAM Plus New Buildings (V1.2)

The projects have to be certified (in Final Assessment stage) or target to achieve (in Provisional Assessment stage) at least the Good Class standard of the Indoor Air Quality (IAQ) Certification Scheme for Offices and Public Places. (Environmental Protection Department, A Guide on Indoor Air Quality Certification Scheme for Offices and Public Places, <http://www.iaq.gov.hk/media/8694/certguide-eng.pdf>)

12. Achievement rate of credit IEQ2 of BEAM Plus New Buildings (V1.2)
13. Hong Kong Green Building Council, HK3030 Market Drivers for Transformation of Green Buildings in Hong Kong (Executive Summary), January 2015, https://www.hkgbc.org.hk/ebook/HKGBC_Roadmap/index.html
14. Statistics including the number of BEAM Professional, BEAM Affiliate, GB Faculty and BEAM Assessor.
15. Training man-hours are offered to BEAM Practitioners by the HKGBC, BEAM Society Limited and other organisations that provide green building-related trainings.

Acknowledgement

Statistics and data related to HK-BEAM assessment tool is generously contributed by BEAM Society Limited and Business Environment Council.