

Hong Kong: Green Building in Action



HKGBC
香港綠色建築議會

Data as at
31/12/2020



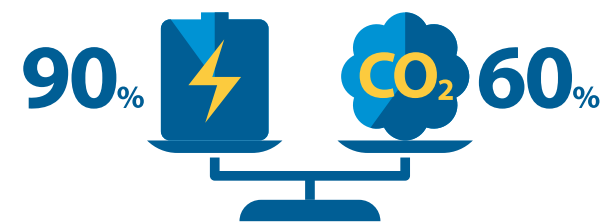
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Fostering Green Building

Hong Kong's Unique Built Environment

Significance of Buildings



Activities in buildings account for **90% electricity consumption or 60% greenhouse gas emissions**¹

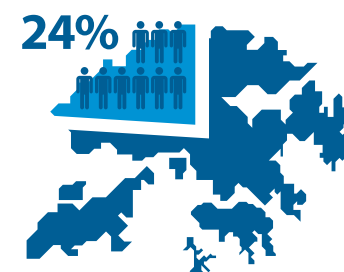
High Population Density



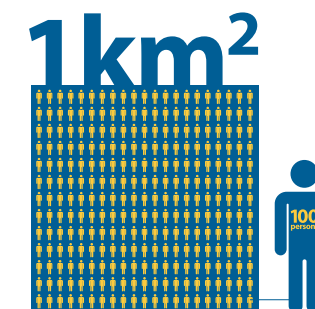
42,000+ buildings in private sector¹



10,314 high-rise buildings and skyscrapers²



People live and work in **24%** of Hong Kong's total area¹



Average population density of built-up areas **28,000 persons/km²**³

BEAM Plus

What is BEAM Plus?

BEAM Plus is Hong Kong's leading initiative to offer independent assessments of building sustainability performance.

What does BEAM Plus assess?



Benefits of BEAM Plus

Developers and owners

- Demonstrate CSR/ESG commitments
- Help achieve carbon neutrality goal
- Achieve climate resilience
- Reduce liability and risks
- Lower building's life cycle cost
- Create future-proof building assets
- Enhance property value
- Differentiate products in the marketplace
- Attract green investors
- Receive possible reduction in profits tax
- Help meet state or city requirements

End users

- Obtain third-party rating that allows easy comparison
- Assure health and wellbeing
- Provide a green living experience and enhance quality of life
- Increase staff productivity and retention
- Lower operating costs including water and energy
- Enhance maintainability and reduce related costs
- Help protect the environment and enhance corporate image

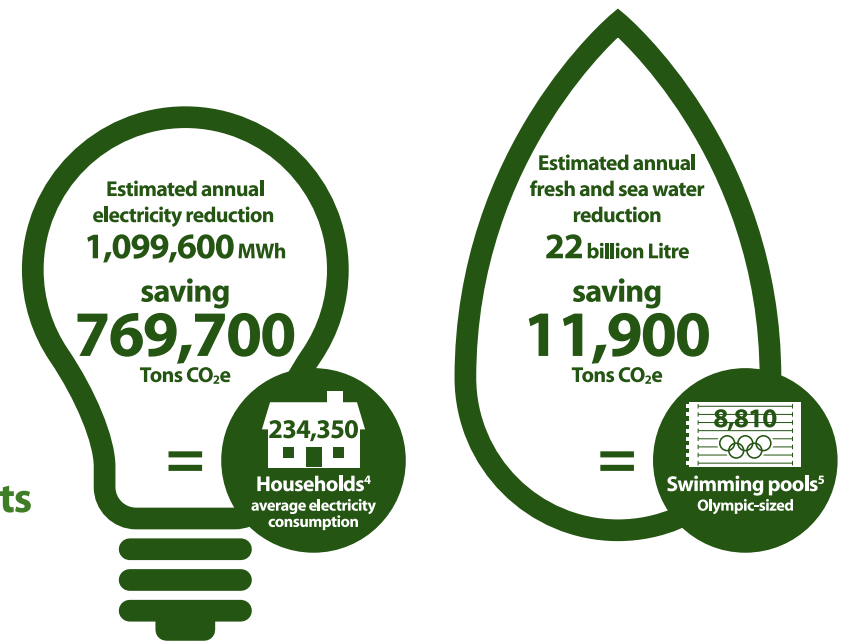
A Strong Green Building Movement in over 20 Years



New Buildings: Building Green Future

Combating Climate Change and Enhancing Liveability

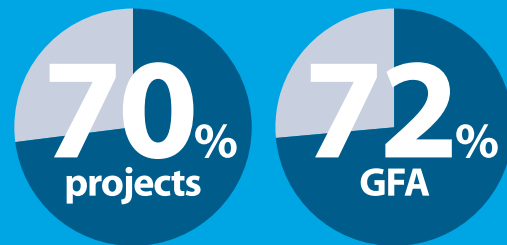
Total saving of BEAM Plus New Buildings assessed projects compared to the baseline:



Aiming High

	Registered	Certified*
No. of Buildings	7,000	2,991
No. of Projects	1,961	996
GFA (m ²)	62.2 million	40.4 million

* Certified means Bronze rating or above



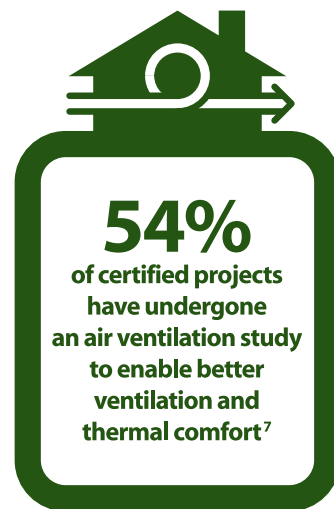
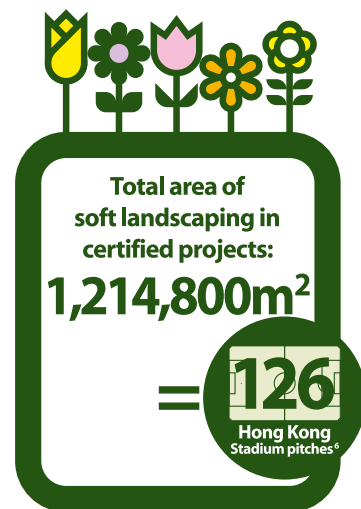
of HK-BEAM and BEAM Plus certified projects have achieved Platinum or Gold rating (including projects with Excellent or Very Good grade under the Selective Scheme of Existing Buildings).

Total estimated carbon emissions saved each year:

781,600 Tons of CO₂e
= **34 million** trees planted

Liveability and a Sustainable Lifestyle

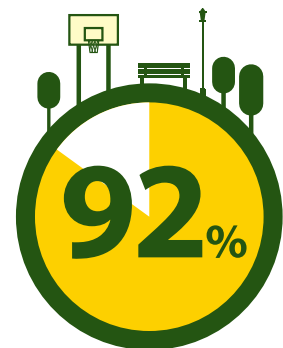
Pleasant Environment



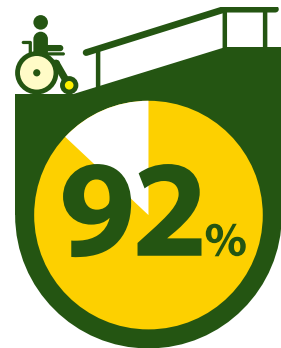
Walkability and Mobility



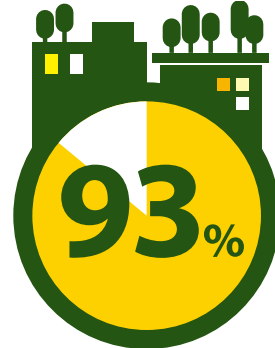
Community Facilities and Amenities



of certified projects have nearby recreational facilities⁹



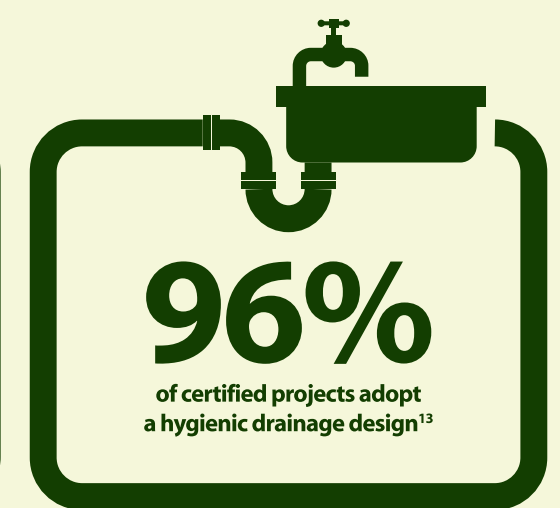
of certified projects provide enhanced universal access¹⁰



of certified projects are well-equipped with building amenity features¹¹

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

Hong Kong Green Building Council has participated in the "Better Places for People" Campaign launched by World Green Building Council (WorldGBC) since 2014. In recent years, WorldGBC has established the North Star Goal for Health & Wellbeing to promote a built environment that delivers healthy, equitable and resilient buildings, communities and cities. To support this goal, "Health and Wellbeing Framework" was launched in 2020 to redefine the scope of health and wellbeing in built environment sector.



Green Sky of Conservation International Hong Kong

"Health and Wellbeing Framework" is a comprehensive educational tool for a healthy and equitable built environment. It equipped the industry with the guidelines and tools to begin this fundamental transition and mapped the determinants of health relating to the built environment. The Framework is structured across six core principles including indoor air quality, human rights in the supply chain, climate change resilience and more.

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) scenario¹⁴



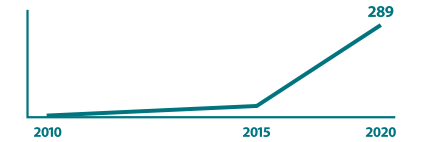
Existing Buildings: Challenges and the Way Forward

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



A Volume Certification arrangement was launched in 2019 to enable multiple properties managed by the same organisation to undergo assessment in a streamlined and cost-effective manner.

Achievements of BEAM Plus Existing Buildings Certified Projects



Key Initiatives Facilitating Market Transformation



ACT-Shop

The HKGBC's ACT-Shop seeks to nurture and strengthen industry competence in retro-commissioning through different pilot cases, and to promote the adoption of knowledge-based energy management best practices in buildings.



Retro-commissioning Training & Registration Scheme

The Scheme aims to enhance retro-commissioning (RCx) standards and encourage the industry to adopt RCx as a primary energy conservation solution for existing buildings through training and registration mechanism. Comprehensive trainings are provided to elevate the skill levels of RCx professionals. Qualified industry practitioner and company can be registered as RCx Practitioner, RCx Professional and RCx Service Providers under the Scheme to carry out relevant RCx works and provide professional advice. The Scheme is in line with HKSAR Government's active promotion of RCx as a cost-effective means of enhancing energy efficiency of existing buildings.



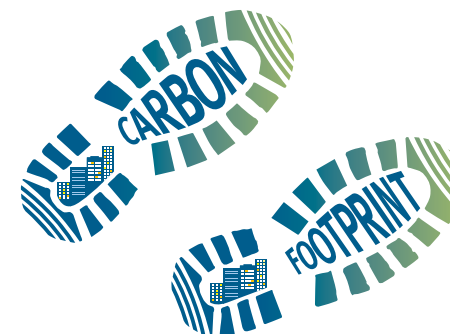
CIC Green Product Certification

The scheme aims to transform Hong Kong into a greener built environment by providing a certification platform for building and construction products / materials. It differentiates products which have significantly reduced their impact on the environment.

Advancing Net Zero

What is Advancing Net Zero (ANZ)?

"Advancing Net Zero" is the World Green Building Council's (WorldGBC) global project which calls for business, organisations, cities, states and regions to reach net zero operating emissions in their portfolios by 2030 and for all buildings to be net zero in operation by 2050.



According to the WorldGBC, buildings currently account for 39% of energy-related carbon emissions globally– with operational carbon emissions accounting for 28% while embodied carbon emissions account for the remaining 11%.

HKGBC ANZ Programme

HKGBC commits to help the Hong Kong building and construction industry sector transition towards net zero in a high density high rise compact city context.



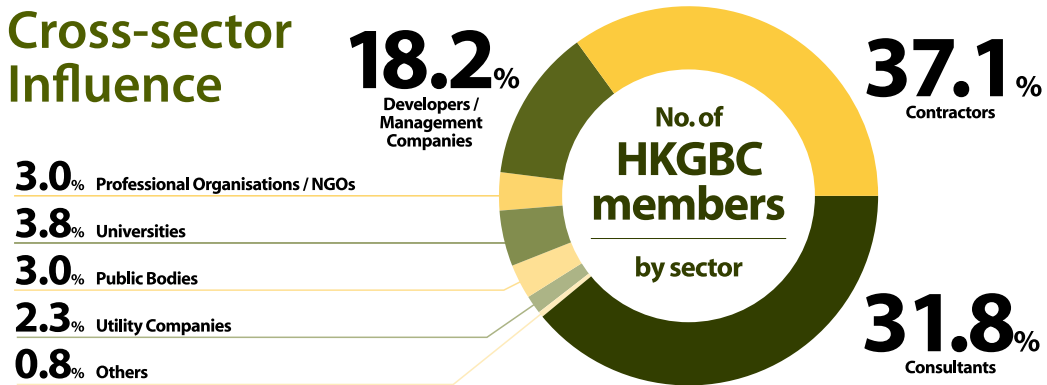
ANZ ADVANCING NET ZERO IDEAS COMPETITION

Hong Kong's first "Advancing Net Zero" Ideas Competition was launched in 2021 to transform the city into a greener built environment.

Turning Engagement into Impact

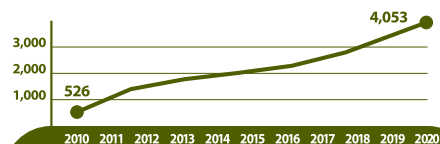
To drive Hong Kong's transformation into a sustainable built environment, it is essential to bring the Government, industry, academia and the public together. As an overarching organisation in the green building community, Hong Kong Green Building Council strives to take the lead in turning the valuable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

Cross-sector Influence



Building Competence

No. of green building practitioners



4,053

green practitioners now serve the green building industry, with qualifications related to BEAM Plus and HKGBC schemes¹⁸

No. of training hours

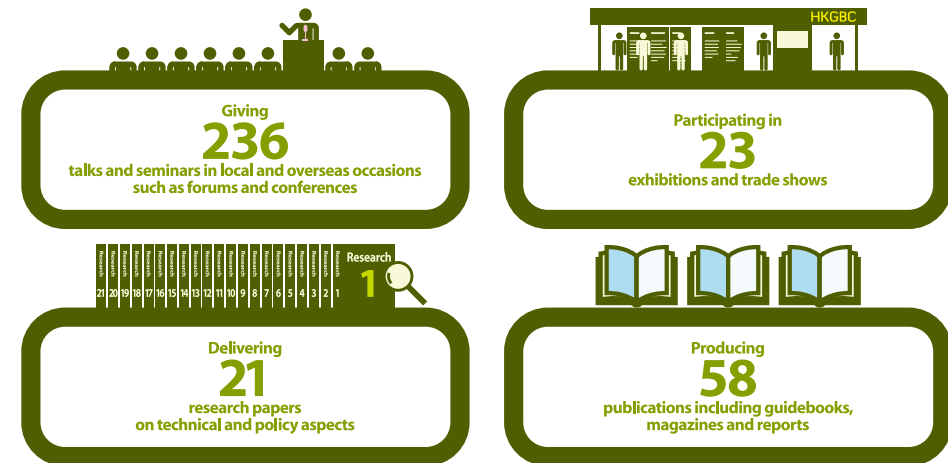


>436,600

training man-hours of CPD activities were undertaken by BEAM Practitioners, RCx Professional and Practitioner in Hong Kong during 2012-2020¹⁹

Turning Engagement into Impact

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



"My Green Space" Student Competition

- Organised since 2011
- Encourages 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

- Established in 2016
- Fosters collaborations between malls and shops in building a green shopping environment

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

Jockey Club BEAM Plus in Schools Project

- Takes place from 2020 to mid-2023 at 120 secondary and primary schools
- Aims to lead the school sector to achieve 10% carbon reduction and BEAM Plus certification
- Carries out retro-fitting works and facility upgrades to reduce carbon emissions and develops a new BEAM Plus manual for Existing Schools
- Provides educational programmes to promote green building concepts to teachers and students

References

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 2020.

1. ENERGY SAVING PLAN For Hong Kong's Built Environment 2015~2025+, <https://www.enb.gov.hk/sites/default/files/pdf/EnergySavingPlanEn.pdf>
2. 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 as defined as a multi-story building at least 100 meters tall.
(Emporis, <http://www.emporis.com/building/standard/75/skyscraper>)

Total number of high-rise buildings and skyscrapers.
(Emporis, <https://www.emporis.com/city/101300/hong-kong-china>)
3. Energy Saving Charter 2020, https://www.energysaving.gov.hk/esc2020/filemanager/doc/ESC2020_Introduction.pdf
4. The average three-person household electricity consumption in Hong Kong is about 391kWh per month.
(Electrical and Mechanical Services Department, Hong Kong Energy End-use Data 2020, https://www.emsd.gov.hk/filemanager/en/content_762/HKEEUD2020.pdf)

Unit electricity consumption of fresh water and sea water are 0.606kWh/m³ and 0.368kWh/m³ respectively.
(Water Services Department, Water Services Department Annual Report 2018/19, https://www.wsd.gov.hk/filemanager/common/annual_report/2018_19/en/index.html)

Average unit electricity consumption of sewage treated is 0.28kWh/m³.
(Drainage Services Department, Drainage Services Department Sustainability Report 2018/19, https://www.dsd.gov.hk/Documents/SustainabilityReports/1819/en/key_statistics_and_data.html)
5. The capacity of an Olympic-sized swimming pool is 2,500,000 L, assuming a nominal depth of 2m.
(FINA Facilities Rules 2017-2021, https://www.fina.org/sites/default/files/2017_2021_facilities_28012020_medium_ad.pdf)
6. The dimension of the pitch area of Hong Kong Stadium is 130m x 74m.
(Leisure and Cultural Services Department, <http://www.lcsd.gov.hk/en/stadium/hks/facilities.html>)
7. Achievement rate of credit SA8c of BEAM Plus New Buildings (V1.1 and V1.2)

8. Achievement rate of credit SA2b of BEAM Plus New Buildings (V1.1 and V1.2)
9. Achievement rate of credit SA3b of BEAM Plus New Buildings (V1.1 and V1.2)
10. Achievement rate of credit IEQ22 of BEAM Plus New Buildings (V1.1 and V1.2)
11. Achievement rate of credit IEQ23a of BEAM Plus New Buildings (V1.1 and V1.2)
12. Achievement rate of credits IEQ6 and IEQ7 of BEAM Plus New Buildings (V1.1 and 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, https://www.iaq.gov.hk/media/82253/gn_officeandpublicplace_eng-2019.pdf)

13. Achievement rate of credit IEQ2 of BEAM Plus New Buildings (V1.1 and V1.2)
14. Hong Kong Green Building Council, HK3030 Market Drivers for Transformation of Green Buildings in Hong Kong (Executive Summary), January 2015, https://www2.hkgbc.org.hk/ebook/HKGBC_Roadmap/files/assets/basic-html/page-1.html
15. Achievement rate of credit EU4b of BEAM Plus Existing Buildings V2.0 Comprehensive and Selective Scheme
16. Achievement rate of credit EU3b of BEAM Plus Existing Buildings V2.0 Comprehensive Scheme
17. Achievement rate of credits MWA1 of BEAM Plus Existing Buildings V2.0 Comprehensive Scheme and MWA2a of BEAM Plus Existing Buildings V2.0 Selective Scheme
18. Statistics including the number of BEAM Professional, BEAM Affiliate, GB Faculty and BEAM Assessor, RCx Professional and Practitioner.
19. Training man-hours are offered to BEAM Practitioners by the HKGBC, BEAM Society Limited and other organisations that provide green building-related trainings.

Acknowledgement

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Enquiry: enquiry@hkgbc.org.hk
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