



Working Towards Zero Carbon Buildings

Zero Carbon Building: requires much more than the current rating tool

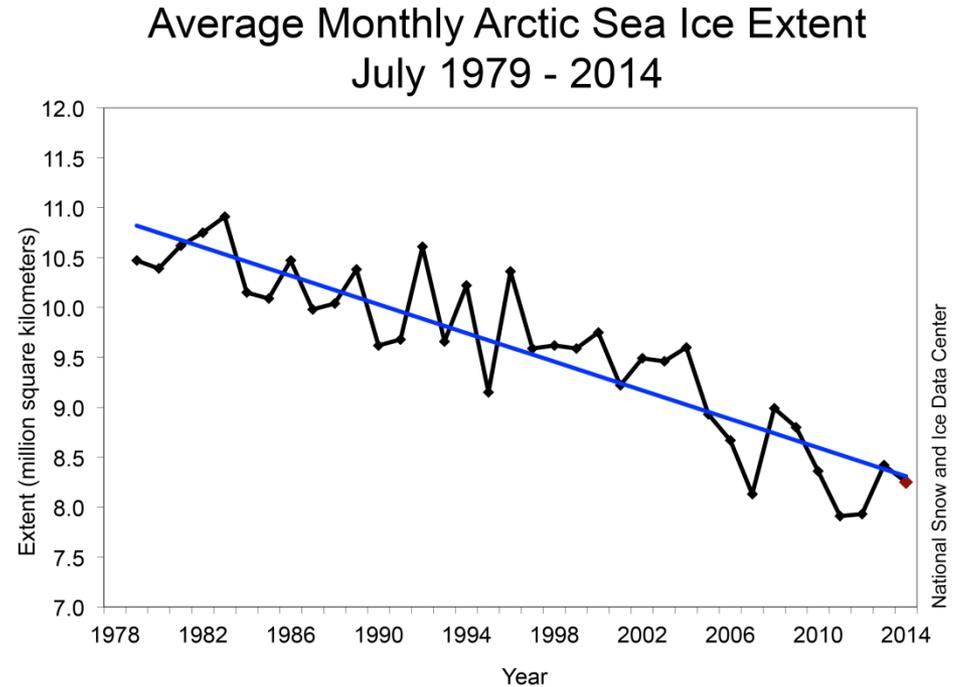
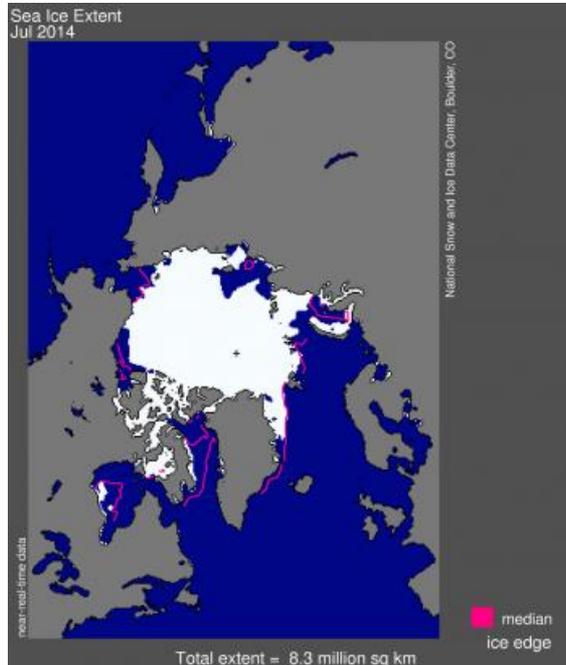
Ir Conrad WONG, BBS, JP
Hong Kong Green Building Council
29 September 2014



Global Warming

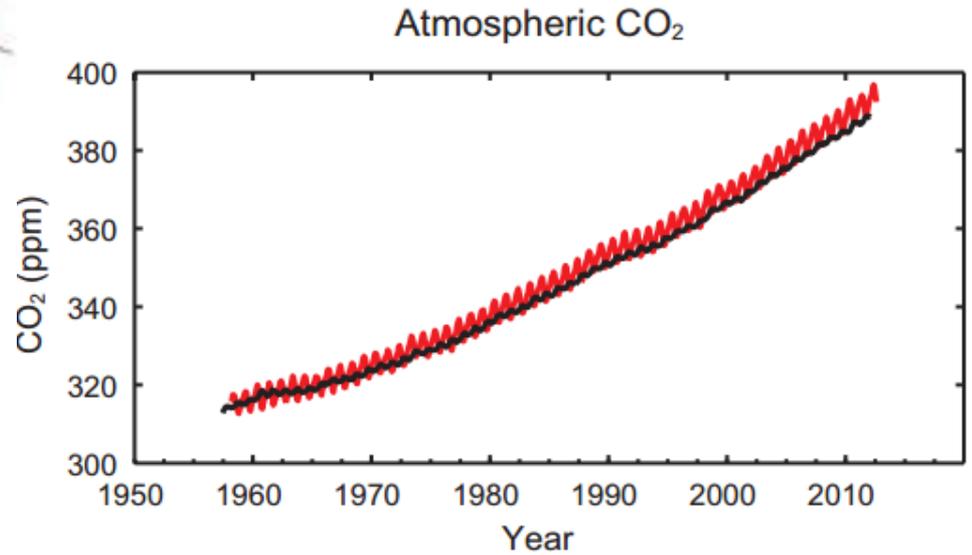
According to the U.S. Environmental Protection Agency (EPA),

- July 2014 average ice extent was 8.25 million square kilometers.
- This is 1.85 million square kilometers below the 1981 to 2010 average for the month.



**Ice Cap Melting reduces the reflection of sun light and accelerate the
Global Warming**

**Sea level is raising due to temperature increases, the annual rate of rise
over the past 20 years has been 0.13 inches a year**



There is no doubt our Earth is sick.
It requires our IMMEDIATE ATTENTION.

Why energy reduction is so important?

- We need to live in a low carbon World without losing the modern comfort and efficiency.



Perhaps the biggest challenge for the human race.

Flooding Central is only a matter of time



Can Hong Kong really sit back and be business as usual?

Why Building is so important for Hong Kong?

Worldwide Building accounts for 40% GHG, but in HK, it accounts for

Total Electricity Consumption

90%

HK GHG Emission per person: 5.9 tons CO₂e
Equals the use of 2.6 planet resources

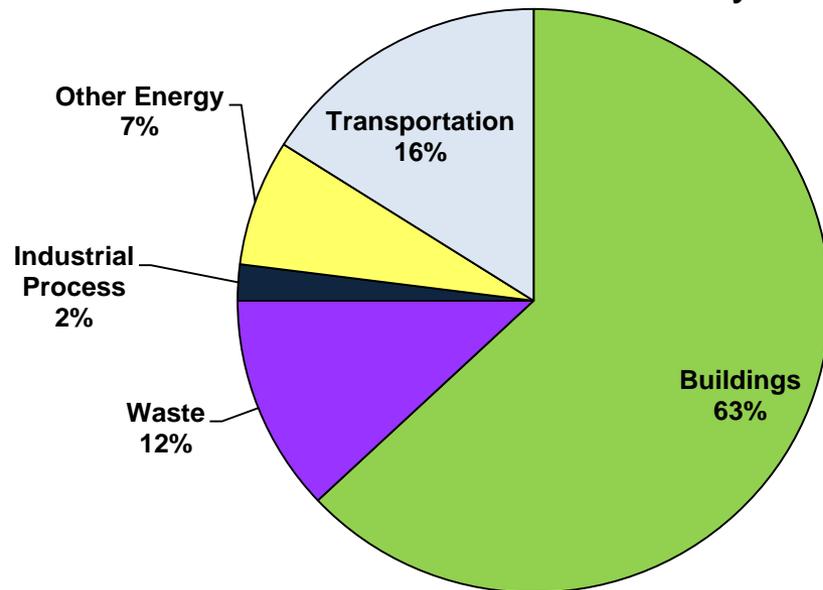


**Irresponsible!
Not Sustainable!**

According to the trend, by 2030 it will take 3 Earths to sustain our lifestyle!

Account for GHG Emission

60%



What is Green Building?

- Green Building is environmentally responsible and resource-efficient throughout a building's life-cycle.



From the World Green Building Council, the World view on Green Building is changing:



Green Building should be redefined as tool for saving the planet and improve well being for people.

Why this change is important?

- Having Certified Green Building (say 80% by 2030), is it sufficient for saving our planet?
- Are the Certified Green Buildings real performing as they designed for?

Design Performance vs Actual Performance

- Does Green Building provide a better and healthier environment for People?
- HKGBC is a founding member of the “**Health, Wellbeing and Productivity in Office Buildings**” project and work side by side with the WorldGBC to boost the development of healthy green building.



HKGBC – An Organization Aims

To save the planet & improve wellbeing for Hong Kong people by advocating **Green Policy** to the Government, introducing **Green Building practice** to the professional and promoting **Green Messages** to the General Public.

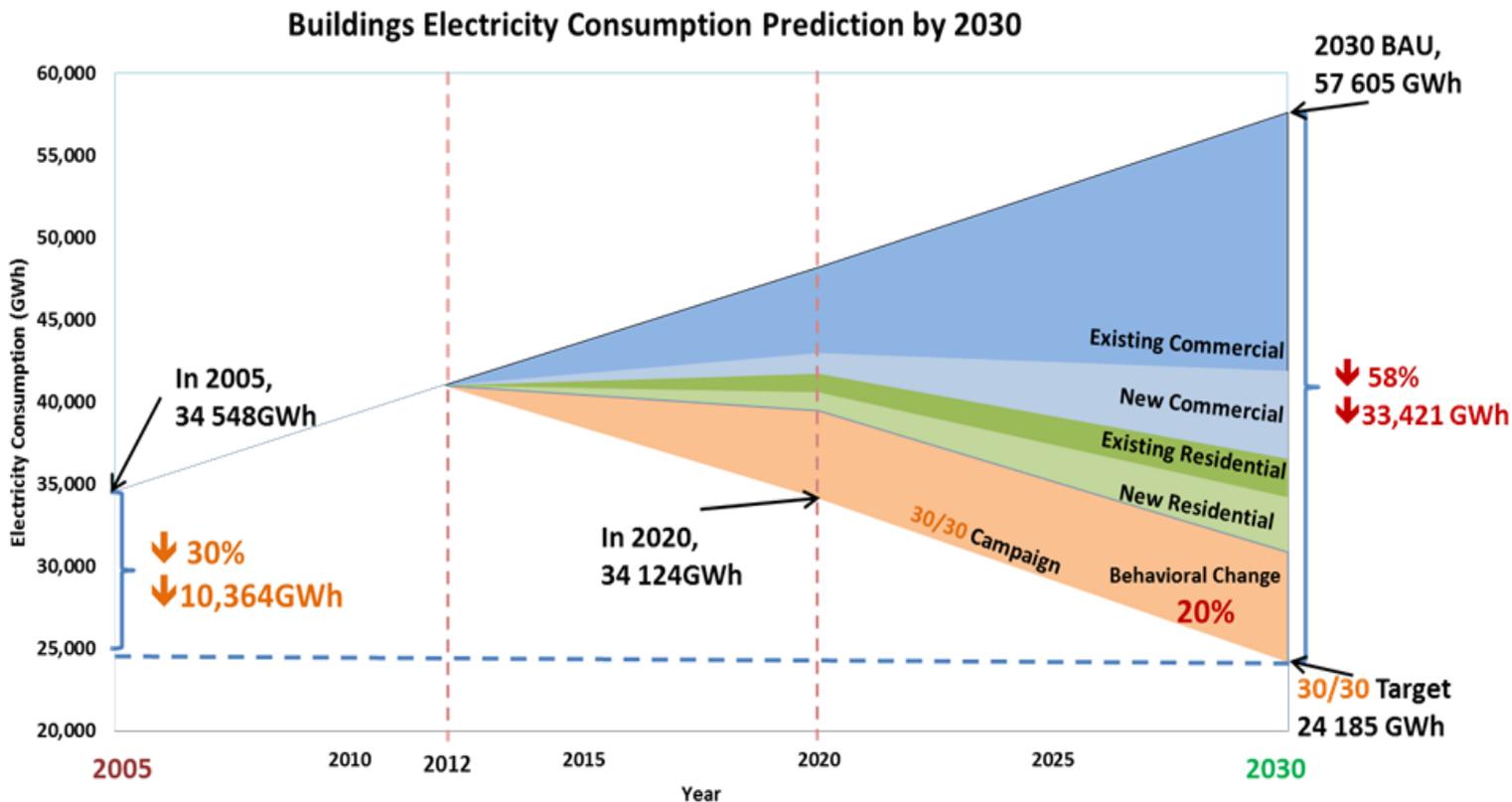




Green Policy Advocacy

HK “30/30” Roadmap – Target

- **30%** Absolute reduction (*10364 GWh*) in Electricity Consumption in Buildings by 2030 (*2005 baseline: 34548 GWh*)
- **60%** intensity reduction (*33421 GWh*) as compared to the projected electricity consumption in 2030





BEAM Plus Energy Reduction Data

The baselines of the 110 assessed projects as of July 2013 are either 2007 or 2012 version of Building Energy Codes.

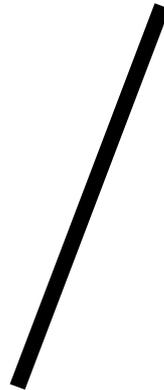
Rating Achieved	%	Average % of Annual Energy Reduction
Platinum	28	30
Gold	21	23
Silver	10	17
Bronze	23	14

Is BEAM Plus certified building good enough for saving the Planet?

Not really.

We need to be more aggressive.

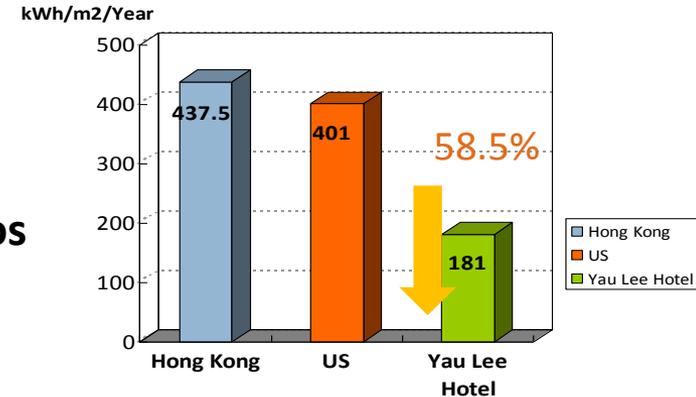
We need to aim for zero or very low carbon building



Holiday Inn Express Hong Kong SoHo

Building Automation – Human is not trustworthy enough

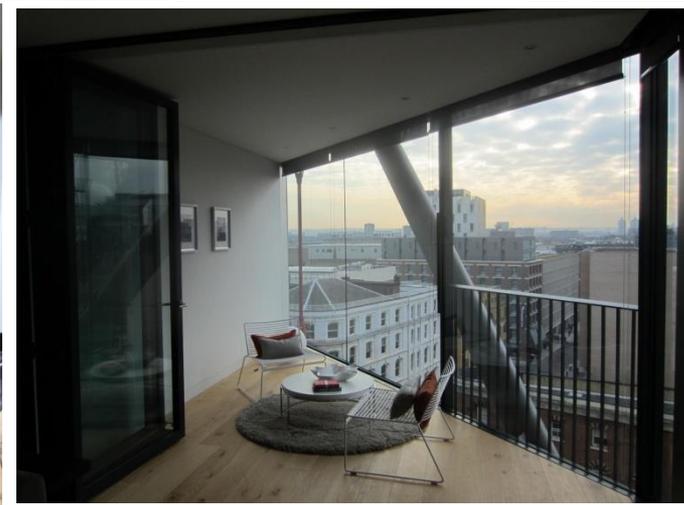
- Opened in September 2012
- Gross Floor Area: 9,163 m²
- Number of floors: 36 storey
- Number of guest rooms: 274 nos



- Energy Saving : **58.5%**
- Energy consumption reduced: **2,070,381kWh**
- Energy Bill Saved: HKD3.33M / year
- Additional Cost: HKD13.26M
- Pay Back Period: 4 years

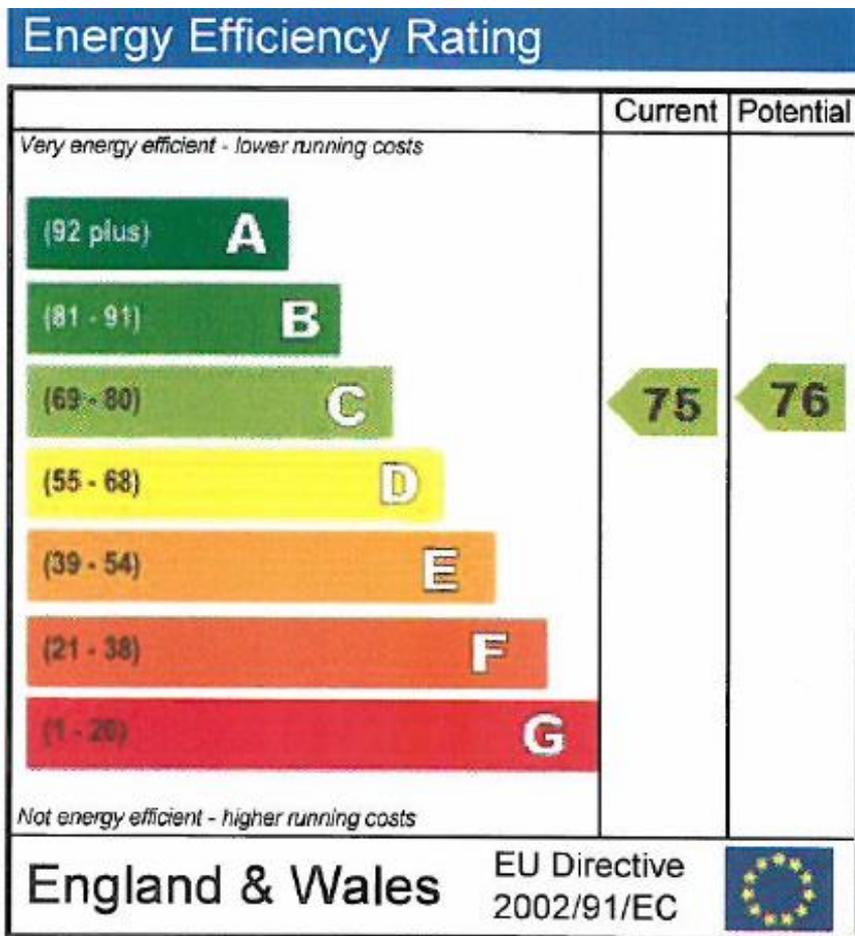


My NEO Bankside Apartment

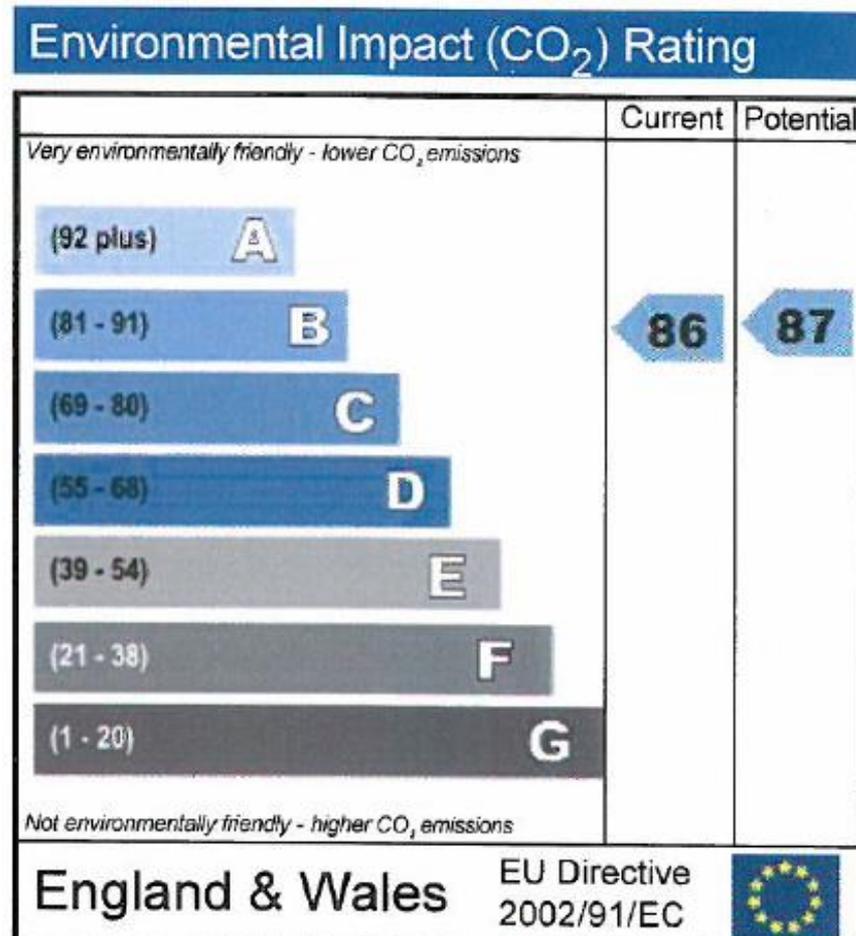


NEO Bankside by
Rogers Stirk Harbour + Partners

Energy & Carbon Label



The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating the more energy efficient the home is and the lower the fuel bills are likely to be.

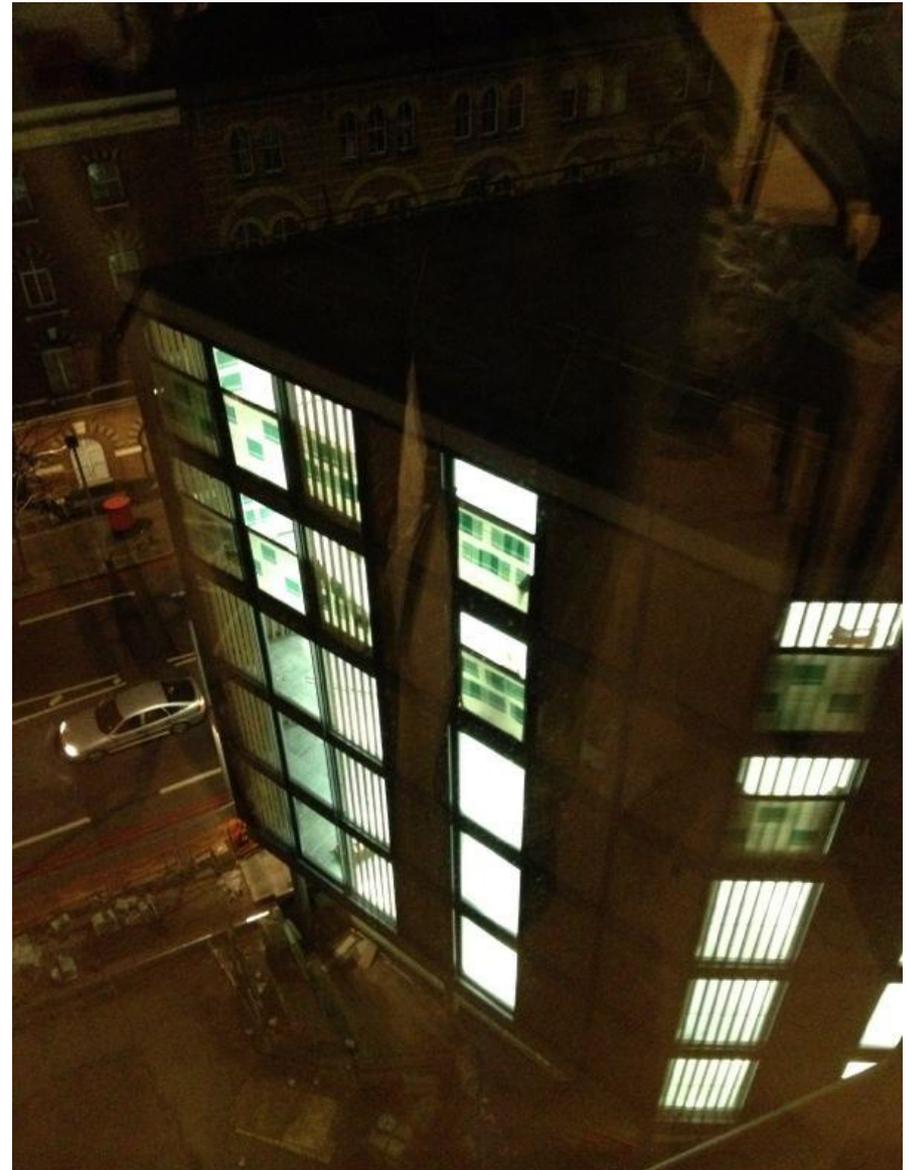


The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO₂) emissions. The higher the rating the less impact it has on the environment.

Outside View from NEO Bankside

- Saturday Evening at 7:00pm
- Construction Project – Phase 5 of the development

All the lighting & heating were on!



Outside View from NEO Bankside

- An office building opposite to my apartment



No energy simulation in the World will assume the lighting be turned on at 7:00pm Saturday evening!

We need tool to measure the actual performance not just design parameter.



We need to pave the way to disclose energy data

The UK Government has announced that under *the Companies Act 2006 (Strategic and Directors' Reports) Regulations 2013*, quoted companies are required to report their *annual GHG emissions* in their directors' report.



In my opinion, we should mandate the disclosure of energy performance for all building in Hong Kong.

Building Energy Performance Recognition Scheme (Office Occupants)

- The tool will analyze the electricity consumption of the applicant and compare with similar office type.
- Energy performance rating will then be advised.
(Platinum/ Gold/ Silver/ Bronze/ Green/ No Rating)

Web Based Platform



Welcome to Building Energy Performance Recognition Scheme - Office Occupants
In this website, you can make use of the assessment tools to assess the energy performance of your office premises and certification & label will be awarded based on the energy performance ratings.



Website

<http://www.hkgbc.org.hk/bestoo>

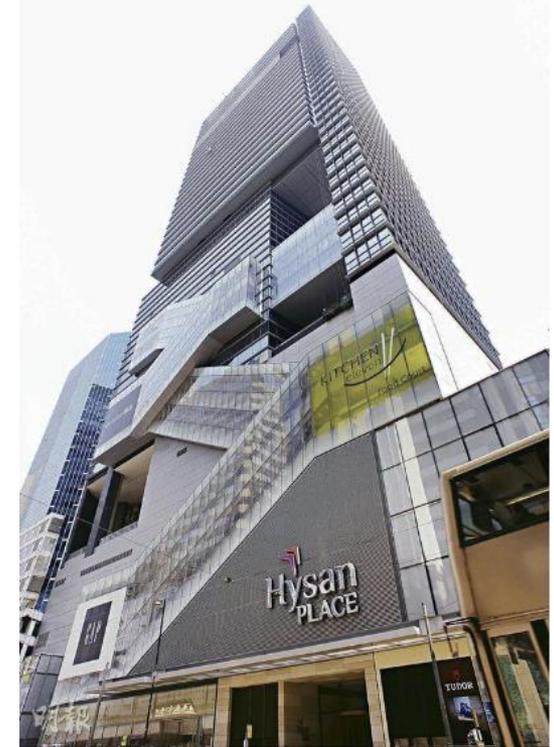
Ratings of Certification and Label

Benchmarking & Energy Saving Tool Rating :	
Ranking of Operational Energy Performance	Label Rating Under the Scheme
Reach Top 10 Percentile of range of data	Platinum
Reach Top 20 Percentile of range of data	Gold
Reach Top 30 Percentile of range of data	Silver
Reach Top 40 Percentile of range of data	Bronze
Reach Top 50 Percentile of range of data	Green
Below 50 Percentile of range of data	No Rating

Building Energy Performance Recognition Scheme (Office Occupants)

The scheme is for the public to assess the energy use of their premises and compare with others of the same type.

- First Stage of the scheme → Office Occupants
- **Phase 2 (Under Development)**
 - Whole Commercial Building for Office Use
- **Phase 3 (Under Development)**
 - Whole Commercial Building for Retail Use



Green Lease Best Practice Guide for Office

- Aims to develop an useful guidelines for building owners, facility/property management companies and tenants on the design of green lease terms and the environmental management of office building and its green building features.
- First stake holder engagement was held in Oct, 2013.
- The Green Lease Best Practice Guide will be launched in **6th October of 2014.**



CIC Carbon Labelling Scheme

- Understand the carbon footprint of your products / developments and thereby formulate carbon reduction strategies i.e. to cut down carbon and \$\$.
- Show you care about carbon footprint and demonstrate your CSR.
- Gain a marketing advantage.
- Link to the BEAM Plus



Carbon Label

Carbon Rating:



Product Category:

Ordinary Portland Cement

Product: White Portland Cement (CEM I 52.5)

Assessment Boundary: Cradle to Site

Country of Origin: Shenzhen, China

Manufacturer: ABC Cement Co., Ltd.

CO₂ Equivalent

(t CO₂e / t cement): 0.90

By life cycle stages (t CO₂e / t)

Raw Material Acquisition 0.12

Production 0.74

Distribution to HK (by truck) 0.04

- Bulk Portland cements for civil engineering, building applications, ready-mixed concrete, and concrete products.
- Complies with BS EN 197-1 CEM I 52.5N.
- Carbon footprint assessment complies with ISO/TS 14067:2013

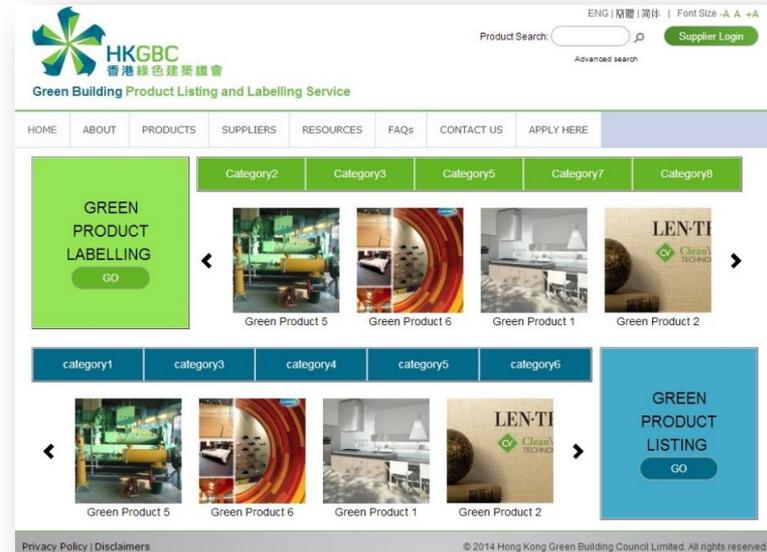
The data are provided according to the Carbon Labelling Scheme launched by the Construction Industry Council, Hong Kong. More information of the labelling scheme can be found at <http://zcb.hkic.org/Eng/CarbonLabelling/>.



We need to take in account for the embedded carbon as well.

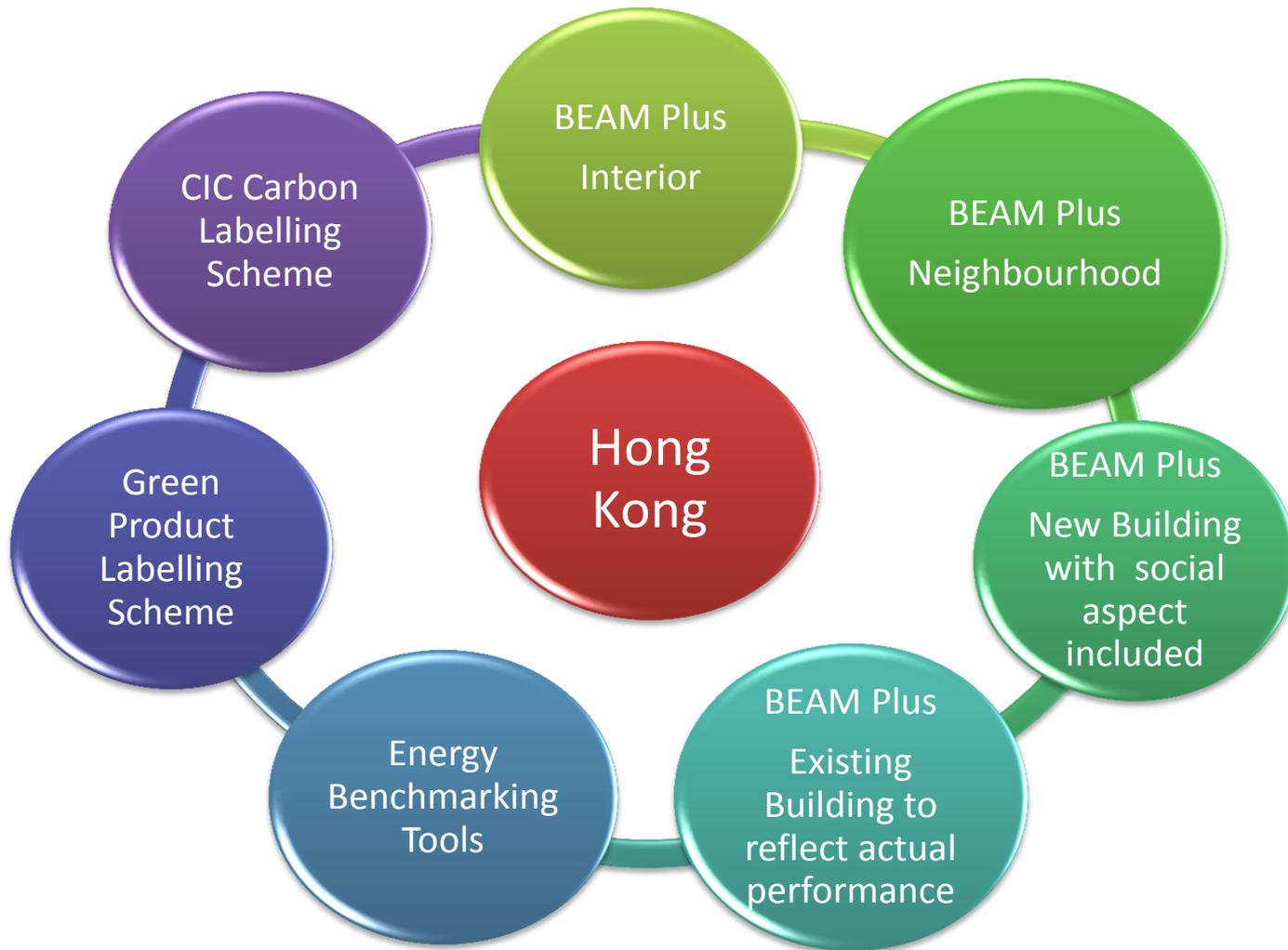
Green Building Product Labelling Scheme

- Building Professionals want to specify Green Building Product in their contract to Promote Green
- General Public may be willing to pay at higher price for a Greener Building Product
- A labelling system is required for market differentiation



Ratings	Benchmarked Scores for each product
Platinum	>90
Gold	81 – 90
Silver	71 – 80
Bronze	61 – 70
Green	50 – 60

In two to three years' time



One of the most comprehensive building assessment system in the World.

**We may need to create a new term of
building – Beyond Platinum
– *Zero Carbon or very low carbon***

How to define and certified such Building?

May be this is the next step for



**Once it is defined, one can provide incentives
and encourage greater adoption.**

Mindset Change



**Wasting energy is a
crime!**

Green Promotion for General Public

Hong Kong Green Building Week 2014



“Speak Green”



*Mini LegCo
& Youth Forum*

Organisers:  CONSTRUCTION INDUSTRY COUNCIL
建造業議會  HKGBC
香港綠色建築議會

“Dress Green, Eat Green, Work



Biz-Green Monday



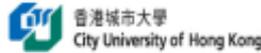
*“Live Green”
Green Community Campaign*

HKGBW 2014
Period: 4-17 Sep

“Think Green Business Ideas”



Green Building Ideas Pitch



“See Green”

*Green Photo and
Micro Film Contest*



Project WeCan
學校起動計劃



香港青年協會
the hongkong federation of youth groups



Junior Achievement
Hong Kong
國際成就計劃香港部

The whole World is under urbanization

Every day there are a million of people moving into cities

There are more and more cities being developed

In a sense, the World is undergoing 'Hongkongization'



Hong Kong is the role model for many Asian Cities



**Hong Kong aspires many of our nearby cities.
What we do does matter!**

We can create our impact

Building Professionals, especially the Building Professionals in Hong Kong have the greatest impact and responsibility to save the planet.



My niece, a young talented transplant surgeon asked me once:
“Which profession is more noble than saving lives?”

My response:
“Saving the Planet!”

That’s exactly what we should do and have to do within our generation.





**Building Professionals are the Doctor of our planet.
We have the expertise to cue our World.
We have to want a low carbon living.**



**It is because our children deserve a greener
World to live.
We are in this for them.
Their future.**