

Public Housing in the Era of Sustainability

Hong Kong Housing Authority's Environmental Initiatives

V.O.:

Cities...

Pinnacles of human ingenuity...

Densely-packed settlements that maximise the use of space.

Half the world's population now lives in urban areas ...
and the proportion is still growing.

There is mounting pressure on our cities.

Facing the threat of resource depletion and facing an increasingly volatile climate,
a mindset change in the way we construct and manage our urban habitat is
essential.

MAIN TITLE:

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V.O.:

Hong Kong...

To accommodate seven million people in a mere 1,100 square kilometres of hilly
terrain is not a simple task.

We rose to that challenge some 60 years ago.

SUPER:

1950s Mark I H-shaped Blocks

Rising like a Phoenix out of a tragic blaze in 1953...
these H-shaped Mark I blocks were purposely built for resettlement...
...and there were roof-top schools and flatted factories nearby.

SUPER:

1960s Slab Blocks

V.O.:

But a swelling population of immigrants and more births...

SUPER:

1970s Twin Tower

V.O.:
...prompted our blocks to grow taller...

SUPER:
1980s Trident Blocks
1990s Harmony Blocks

V.O.:
...and natural ventilation and daylight were captured in the designs ...

...a time before sustainability became a popular term.

SUPER:
2000s Site-specific Designs

V.O.:
Now, about one-third of Hong Kong's population live in public rental housing.
The estates' design has evolved from one that pursues spatial efficiency...
to one that promotes people's well-being,
in order to meet our present needs without compromising the benefit of our
future generation.

SECTION TITLE:
Committed to a Green Future

V.O.:
Each public housing requires rigorous planning.

In 1999, the Housing Authority pioneered its own environmental initiatives.

SUPER:
**The Housing Department Environmental, Health and Safety Committee
(HDEHSC)**

V.O.:
Headed by the Director of Housing, the Housing Department Environmental,
Health and Safety Committee was set up...

SUPER:
The Housing Department Environmental Sub-committee (HDESC)

V.O.:
...to establish and oversee environmental policies...

GRAPHIC:

- I. *Housing Department*
- II. *Housing Department Environmental, Health and Safety Committee*
- III. *Housing Department Environmental Sub-Committee*
- IV. *Divisional Implementation*

V.O.:

...that ensure the planning, construction and management of public rental housing adhere to our green targets and initiatives.

GRAPHIC:

Core Values of Housing Authority:

Caring, Customer-focused, Creative and Committed

V.O.:

We aim to provide quality homes that are both eco-friendly and people-oriented...

GRAPHIC:

Environmental

Biodiversity

Environmental + Social

Air Quality

Noise Control

Green Materials

Control of Hazardous Materials

Estate Greening and Landscaping

Green Activities

Environmental + Economic

Energy and Carbon Emissions

Social

Safety Performance

Public Health and Hygiene

Social + Economic Performance

Housing Rent Policy

Resource Optimisation

Economic

Financial Performance

Environmental + Social + Economic

Water Conservation

Waste Management
Micro-climate Studies
Staff Development and Participation
Operation with Cost-Effectiveness
Engaging Various Parties
Enhancing Estate Management and Services
Sustainable Living Environment

V.O.:

...and to achieve sustainability in three spheres: environmental, social and economic.

SECTION TITLE:

Building a Sustainable Community

V.O.:

Since 2004, the micro-climate conditions of all sites are studied before commencement of the public housing projects ...

SUPER:

Micro-climate Studies: Natural Ventilation

V.O.:

A green design is developed to optimise the use of natural ventilation...

SUPER:

Micro-climate Studies: Daylight & Sun Shading

V.O.:

...wind and daylight.

SUPER:

Micro-climate Studies: Solar Heat Study

V.O.:

...and to avoid too much heat being absorbed by residential units. This saves energy and enhances the comfort of residents. The effectiveness of our micro-climate studies is confirmed by on-site validation.

SUPER:

Air Ventilation Assessment

V.O.:

The air-flow is also investigated...
... in order to minimise the potential impact brought by our proposed buildings on the neighbourhood and to perfect the eco-design.

GRAPHIC:

Life Cycle Assessment

V.O.:

In the early design stage, we seek to use building materials that are most economical and have minimal impact on the environment throughout their life cycle.

GRAPHIC:

Carbon Emission Estimation Model

Total CO2 Emission = I + II + III - IV - V + VI

I: Materials Consumed During Construction

II: Materials for Building Structure

III: Communal Building Services Installations

IV: Renewable Energy

V: Trees

VI: Demolition

V.O.:

In 2011, we pioneered the Carbon Emission Estimation Model to estimate the amount of carbon emissions from our buildings.

To reduce our carbon footprint, our building structures are now designed for a 100-year life span.

SUPER:

ISO14001 and ISO 50001 Certification

V.O.:

Our environmental and energy management are certified to ISO 14001 and ISO 50001 standards.

SUPER:

Green Construction Methods & Materials

V.O.:

We also require our contractors to fulfil these international standards when constructing our estates.

SUPER:

Green Construction Methods & Materials:

Pre-casting and Pre-fabrication

V.O.:

Modular designs have become key features of public housing design since the 1990s. Components can be pre-cast and pre-fabricated in a controlled environment in the pre-casting yards.

This reduces construction activities on sites, meaning a cleaner and safer construction process and the quality of the buildings is also assured.

V.O.:

Our green building materials, to mention but a few, include...

SUPER:

Green Construction Methods & Materials: Timber from Sustainable Sources

V.O.: ... timber from sustainable forests,

SUPER:

Green Construction Methods & Materials: Recycled Marine Mud

V.O.: ...recycled marine mud...

SUPER:

Green Construction Methods & Materials: Recycled Glass and Aggregates

V.O.:

...and recycled glass for eco-paving blocks...

SUPER:

Green Construction Methods & Materials: Ground Granulated Blast-furnace Slag (GGBS)

V.O.:

... and Ground Granulated Blast-furnace Slag, a steel industry by-product, to partially replace cement in precast concrete to cut carbon dioxide emissions.

V.O.:

All of our new housing blocks comply with the Hong Kong Building Energy Codes.

SUPER:

Energy Conservation: Two-level Lighting Control System

V.O.:

The two-level lighting control system installed in common areas inside the blocks lets users in need adjust lighting levels to avoid unnecessary energy consumption.

V.O.:

We also use renewable energy, such as solar power and wind power.

SUPER:

Energy Conservation: Hybrid Ventilation System

V.O.:

In our commercial premises, our hybrid ventilation system can help reduce air-conditioning usage by combining the use of natural and mechanical ventilation.

SUPER:

Water Conservation: Rainwater Harvesting System

V.O.:

We also harvest rainwater and collect condensate from air-conditioning systems for irrigation.

SUPER:

Water Conservation: Common W-trap System

V.O.:

In our drainage system, we learned from the SARS experience and developed the Common W-trap System, ensuring the proper function of water seal in the trap to provide a hygienic drainage system.

SUPER:

Water Conservation: Twin Tanks for Fresh and Flush Water Supply

GRAPHIC:

Twin Tanks for Fresh and Flush Water Supply

V.O.:

Our award-winning Twin-Tank System on rooftops is also worth mentioning. This system ensures uninterrupted water supply during cleansing of water tanks, providing convenience to residents and saving water.

We also provide water-efficient shower heads and water taps in all new housing projects.

SUPER:

Mechanised Refuse Handling Systems

GRAPHIC:

Central Compactor System

V.O.:

Under each building, refuse compactors can compact waste hygienically, reduce its volume and hence the transportation load.

SUPER:

Noise Barriers

V.O.:

To mitigate traffic noise, we've installed noise barriers at sites that are close to main roads.

SUPER:

Greening

V.O.:

To draw our residents closer to nature, we target to devote 30 per cent of the area of each estate to green space...

SUPER:

Greening: Roof Greening

V.O.:

...in various forms and landscapes.

SUPER:

Greening: Vertical Greening

V.O.:

Greening helps alleviate the urban heat island effect...

SUPER:

Greening: Landscape Improvement Programme

V.O.:

... and makes the environment pleasant for our residents.

SUPER:

Conserving and Promoting Biodiversity

V.O.:

We're also trying to conserve and promote biodiversity.

V.O.:

In recognition of our endeavours, we achieved the BEAM Plus standard and the first China's three-star green building standard in Hong Kong.

SECTION TITLE:

Fostering a Green Culture

SUPER:

Energy Conservation

GRAPHIC:

Electricity Consumption in Public Area of Estates

V.O.:

In existing estates, we have been promoting energy-saving practices.

SUPER:

Water Conservation

V.O.:

...and water conservation.

GRAPHIC:

Average Domestic Waste Production

V.O.:

The amount of household waste has been decreasing...

SUPER:

Source Separation of Domestic Waste Programme

V.O.:

...because we have schemes that promote source separation of domestic waste and recycling of aluminium, waste paper, plastic bottles, glass bottles, used clothes...

SUPER:

Food Waste Recycling

V.O.:

...and more recently food waste.
The collected domestic waste can be recycled.

SUPER:

Green Activities: Action Seedling

V.O.:

In partnership with contractors and green groups,

SUPER:

Green Activities: Estate Green Fun Day

V.O.:

...we've been organising a series of long-term programmes to engage our residents and students of nearby schools...

SUPER:

Green Activities: Green Delight in Estates

V.O.:

...with an aim to promote green awareness and to instil a green culture.

//TRANSITION//

V.O.: As for a green workplace, we have various green initiatives to promote green awareness amongst staff...

GRAPHIC:

Electricity Consumption in all HA Offices

V.O.:

...to cut down on electricity,

GRAPHIC:

Water Consumption in HA Headquarters

V.O.:

...water,

GRAPHIC:

Paper Consumption in all HA Offices

V.O.:

...and paper consumption;
...and to reduce our carbon footprint.

//TRANSITION//

SUPER:

Heritage Feature

V.O.:

For the past 60 years, the Hong Kong Housing Authority has been providing homes for the needy and we strive to excel.

We are not only providing shelters.
We are creating a community that is healthy, pleasant and sustainable.

This is our responsibility in this green era:

We care for the environment
...and we care for the people.

Together we build a sustainable and harmonious community.

THE END