

Environmental Performance

- Initiatives in Planning and Construction of New Housing Estates
- Initiatives in Existing Housing Estates
- Initiatives in Office at Work



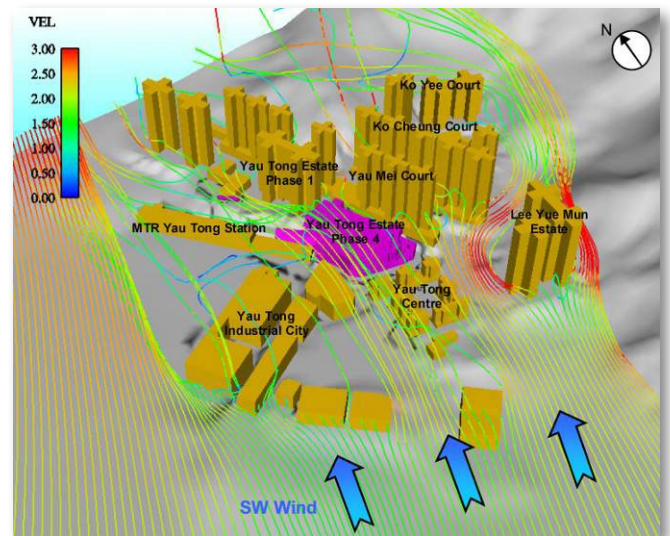
Initiatives in Planning and Construction of New Housing Estates

Environmentally Responsible Planning and Design

Micro-climate Studies

Starting from 2004, we have been conducting micro-climate studies during the planning and design stages in order to identify the best options for our development projects. By adopting advanced computer simulation models with the application of computational fluid dynamics, local climate features of the development, including wind environment, natural ventilation, natural daylight, solar heat gain and pollution dispersion, etc. are taken into account in our project designs.

Through conducting micro-climate studies according to the characteristics of the site, we can provide greater human comfort for our tenants by enhancing environmental performance of our public housing blocks. In 2012/13, 33 of our development projects have adopted micro-climate studies.



Simulation diagram of micro-climate studies for the Domain, shopping centre at Yau Tong Estate

Low Carbon Building Design

Over the years, we have been taking forward actions during the planning stage of our projects to look for opportunities to alleviate greenhouse gas (GHG) emissions in order to contribute to the government's goal of reducing carbon intensity by 50-60% by 2020 when compared with 2005.

In our recent development projects, we have been adopting the Carbon Emission Estimation (CEE) method for all new projects at design stage to identify carbon emissions reduction opportunities through the assessment of six aspects, namely, construction materials, structural materials, communal building services installation, renewable energy, tree planting and demolition. Since its implementation in 2011, we have applied the CEE method to 19 design projects. This enables us to benchmark the carbon emission levels throughout the project life cycle with various design options and to set achievable goals for improvements.



Kai Tak Site 1A project design with the application of Carbon Emission Estimation method to benchmark the carbon emission levels throughout the project life cycle

Construction of Green Buildings

Using Green Materials and Components

Application of green building construction technology is very important to our development projects as many novel green construction methods and products can bring us considerable benefits in the long run.

For “green” construction materials, we have since 2011 specified that the timber used for our temporary works should come from sustainable sources such as Forest Stewardship Council. In addition, we have established specifications that the non-fire rating or half-hour fire rating door cores used in public housing should be softwood from sustainable source.



Timber used in sites with FSC certification

We constantly look for opportunities to reduce waste generated from our development projects. We always select materials that can be suitably recycled and used within the site or for other development projects. For instance, in the development of Kai Tak Site 1A project, the cement-stabilised marine mud was used for backfilling within the site. These treated materials were also used for paver blocks, masonry blocks and roof tiles, which became building materials to be applied within the construction site. In addition, recycled plastics were reused as external decking in various projects.



Use of cement-stabilised marine mud for backfilling



Paver blocks made of cement-stabilised marine mud

To further enhance the use of “green” materials and components, we have specified and stipulated the following requirements in all our building contracts:

- Use of pulverised fuel ash (PFA) as cement replacement materials in structural concrete with mass concrete pouring such as transfer plates/beams
- Use of recycled rock fill in earthworks and recycled sub-base materials in roadworks
- Use of recycled rock cores retrieved at GI works for landscape and associated external works
- Use of recycled glass cum aggregate for concrete paving blocks

By replacing part of the cement with PFA in the concrete mixes, we saved about 55 000 tonnes of cement in 2012/13.

To reduce concrete usage and to make the best use of recycled materials in our development projects, we have specified the requirements of using Ground Granulated Blastfurnace Slag (GGBS) as a partial substitute of cement in precast concrete facades building contracts since December 2011. From now on, GGBS will be used to replace 35% of the cement in the precast concrete facades in all our new development projects. With such arrangement, we estimate that for each 41-storey domestic block there will be a saving of about 300 tonnes of cement.



GGBS as a partial substitute of cement in precast concrete facades

To further reduce concrete usage and to achieve better concrete performance during construction, we have applied Excelicrete™ technology for floor slabs and beams at the car park and commercial facilities in the pilot project of Kai Tak Site 1B.

Our on-going assessment of synthetic macro-fibre reinforcement on-grade slabs indicated that the performance was satisfactory. As such, we have incorporated this technology in the design of various projects, including Sha Tin Area 52 Phase 2, Anderson Road Site D and Site E Phases 1 & 2.

Adoption of Green Construction Methods

As early as 1980s, we have already been pioneering the use of precasting techniques in construction of our domestic blocks. We have included facades, stairs and semi-slabs as the precast components in all development projects. In addition, precast concrete components such as precast columns, beams and semi-slabs had been widely adopted in the carpark of Kai Tak Site 1A. The adoption of volumetric precast bathrooms at Kai Tak Site 1A and 1B has been extended to 10 other development projects, while volumetric precast kitchens have been incorporated in two projects. A precast water tank at ground floor and a precast roof water tank have been incorporated in the Kwai Shing Circuit and Sha Tin Area 52 Phase 2 projects respectively.



Volumetric precast bathroom in Kai Tak Site 1B

Another green initiative that we implemented was the adoption of re-usable modular hoarding with bolt-and-nut fixing design in our development projects. Such application has been extensively adopted in housing projects including Lei Yue Mun Phase 3, Anderson Road Sites D & E, So Uk Estate Phase 2 and Sha Tin Area 52 Phases 1, 3 and 4.



Re-usable modular hoarding at Anderson Road Sites

By adopting precast concrete components, metal formwork and metal hoarding, we conserved 16 500 tonnes of timber from our construction projects in 2012/13.

To further enhance the environmental performance of contractors on site, we have applied the use of hard paved construction method to all of our piling and building sites since 2005. In addition, we have stipulated the following requirements in our works contracts:

- Submission and implementation of environmental management plan by contractors on site;
- Banning the use of incandescent light bulbs for temporary lighting on site;
- Use of generators with Quality Powered Mechanical Equipment Labels;
- Mandatory installation of water recycling facilities;
- Adoption of specification restricting vehicle speed on site;

On the other hand, we have investigated the potential of reducing packaging waste materials in construction sites. After liaison with materials suppliers, measures in reducing packaging waste have been introduced for cooking bench, sink unit and metal gateset.

Design for Achieving Sustainable Building Standards – Hong Kong Building Environmental Assessment Method Plus (BEAM Plus)

In the design stage of our housing projects, we always strive to achieve recognised building assessment standards so as to ensure that our developments can provide a safer, more comfortable, more functional and more efficient living environment for our tenants. Starting from 2011/12, we have begun to promulgate new building specifications to align with BEAM Plus standards in all our housing projects.

Our achievements to the BEAM Plus green building standard in our new projects are summarised below (up to end of March 2013):

Project	Type	Assessment Tool	Rating
HOS Development at Sha Tsui Road, Ex-Tai Wo Hau Factory, Tsuen Wan	Residential	BEAM Plus NB V1.1	Registered
New HOS Development at Ching Hong Road	Residential	BEAM Plus NB V1.1	Registered
Proposed HOS Development at Mei Mun Lane, Shatin Area 4C	Residential	BEAM Plus NB V1.2	Registered
Proposed HOS Development at Pik Tin Street, Shatin Area 4D	Residential	BEAM Plus NB V1.2	Registered
Public Rental Housing Development at Ex-Yuen Long Estate	Residential	BEAM Plus NB V1.2	Provisional Platinum
Public Rental Housing Development at Lin Shing Road, Chai Wan	Residential	BEAM Plus NB V1.2	Registered
Public Rental Housing Development at San Po Kong	Residential	BEAM Plus NB V1.2	Registered
Public Rental Housing Development at Tung Chung Area 56	Residential	BEAM Plus NB V1.2	Registered
Public Rental Housing Development at Ex-Au Tau Departmental Quarters	Government, Institution or Community	BEAM Plus NB V1.2	Registered
Public Rental Housing Development at Anderson Road Sites A and B Phases 1 and 2	Residential	BEAM Plus NB V1.2	Registered
Public Rental Housing Development at Tuen Mun Area 54, Site 2, Phases 1 & 2	Residential	BEAM Plus NB V1.2	Registered

Greening for the Environment

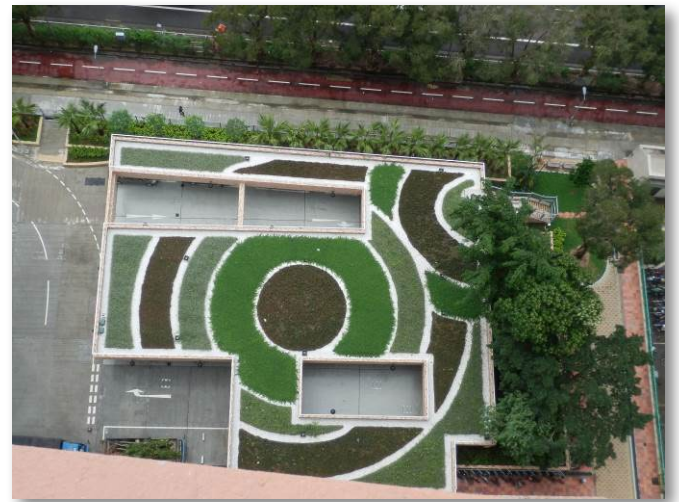
We have formulated comprehensive plans for greening with due consideration to site constraints when planning and designing new public housing. We have established the overall target of 30% green coverage for all new housing projects, with a minimum of at least 20%. To strengthen greening initiatives in our developments, all new housing projects are planned with a tree planting ratio of not less than one tree per 15 flats.



Greening in Fung Wo Estate at ground level

We have introduced an enhanced tree management plan and a tree management system that is operated on Geographic Information System. This initiative can facilitate the preservation and protection of all existing trees in our estates.

During the year, we have established a number of green roofs for low-rise structures. Green roofs at high-rise blocks have also been incorporated in designing suitable projects. In addition, we have provided vertical greening and grass paving system for some vehicular areas. Two residential blocks in Tseung Kwan O 73B were selected for the study of the environmental benefits and energy conservation effectiveness of green roof.



Green roof at Fung Wo Estate

We have also introduced areas for community gardening and have organised Action Seedling programme to promote community participation in early planting.



Action Seedling at Hung Hom Estate



Action Seedling at Tung Wui Estate

To maintain green features of our estates, we have been providing various slope treatment services, including hydroseeding, planting, and other green treatments, in order to improve the appearance of all newly formed slopes.

To optimise greening and foster a green living environment, we have adopted some other initiatives such as:

- conducting pilot Bio-swale installation with Spent Mushroom Compost in Tin Shui Wai Area 104 to protect underground water by reducing contaminants;
- incorporating facilities to turn garden waste into compost in the design of the community planter area in Kwai Shing Circuit; and
- mixing recycled felled trees with food waste to produce compost during the construction stage in Hung Shui Kiu Area 13 Phase 3.

Energy Conservation

Systematic Approach for Effective Energy Management – ISO 50001

Realising the importance of effective energy management, we started to develop an Energy Management System (EnMS) based on the internationally recognised ISO 50001 standard in 2011. Compliance with the ISO 50001 standard demonstrates that we are committed to implementing a sustainable and systematic approach on energy management in order to improve energy efficiency for our operations.

With our continuous efforts in pursuit of effective energy management, we received the first ever ISO 50001 certification for residential building design in Hong Kong in June 2012. The implementation of our EnMS has also assisted us in verifying the energy performance of various designs for communal building services at our new domestic blocks. Energy estimation has been conducted for all new projects. As of March 2013, we have completed energy baseline comparisons, using the framework of our EnMS, for 13 projects at the design stage for further improvement.

Achieving Energy Efficiency in Buildings

Since 2002, we have been obtaining energy certificates for all newly completed buildings. This year, we have obtained 85 energy certificates for our buildings in the four key types of building service installations, including air-conditioning installations, lighting installations, electrical installations as well as lift and escalator installations, which complied with the design standards as stipulated in the associated Building Energy Code. This demonstrates our compliance and commitment to achieve energy saving in our buildings.

Use of Renewable Energy

Riding on the success for the application of PV systems in different housing estates, we promulgated standard specifications for installation of PV systems in 2012 for incorporation into our electrical sub-contracts in order to facilitate the widespread application of PV systems in our new public housing projects.



Solar panels at Kai Tak Site 1A

During the year, we have incorporated a grid-connected PV system in the designs of all new domestic blocks where there is sufficient roof space and direct sunlight available to facilitate the usage of PV systems. It is estimated that the PV system can provide about 1.5% of the communal electricity demand. All new housing developments were provided with one or two solar-powered light fittings for educational purpose.

Application of Light Emitting Diode (LED) Lighting

In recent years, we have been carrying out feasibility studies for the application of LED lighting system and the prototype of LED bulkhead for general illumination at selected housing estates. Further to the trial application at Tsz Ching Estate, we started to install LED bulkhead light fittings in a larger scale trial for one entire domestic block at Kai Ching Estate at Kai Tak Development this year and the performance is under monitoring.



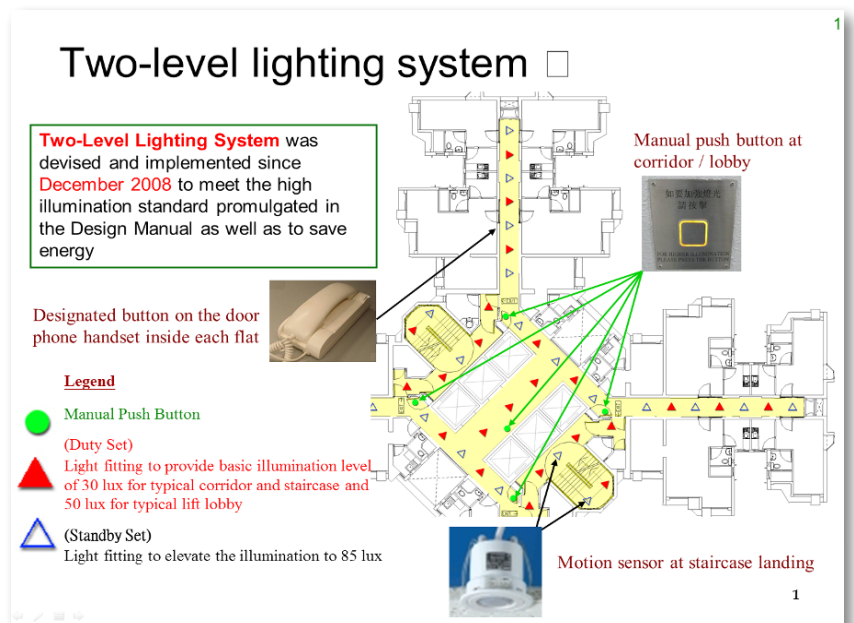
LED installations at Kai Ching Estate

Trial Use of Energy-saving Technologies and Initiatives for Lift Installations

We notice our lift system in buildings is one of the heavy consumers of power. As such, we have been seeking opportunities to optimize the energy efficiency for our lift operations. Over the years, we have liaised with various lift contractors to explore the wider use of energy efficient gearless permanent magnet synchronous lift motor in the lift types commonly adopted in our projects. During the year, we also completed the trial applications of regenerative drives in high speed lifts to generate electricity for supporting the lighting and other equipments in the communal area. Regenerative power provision for lift motors of 18 kW or above would be made in new lift installations.

Optimisation on Illumination Level of Domestic Blocks

In response to the requirements of achieving barrier free access in buildings, the statutory illumination standard for public areas has been significantly increased. As such, we have incorporated a two-level lighting system for all new domestic blocks in our building design since 2008 in order to achieve the new illumination standard without undue increase in energy consumption.



Two-level lighting system

During the year, we completed trial applications for environmental lighting controls, using motion-sensors and push buttons at the communal areas of five domestic blocks and the results were satisfactory. After the trial application, a technical guide was issued and the application of environmental lighting controls is now widely adopted in all the new domestic block designs.

Smart Meter and Information Display System

The trial installation of display system in Yan On Estate to provide tenants with information on electricity, gas and water consumption has been completed. This system facilitates comparison among blocks of the same estate in order to motivate tenants to save energy. A “smart meter” monitoring system combined with displays at main entrance lobbies for tenants’ information is planned to be adopted for future projects.

Application of Hybrid Mode of Ventilation

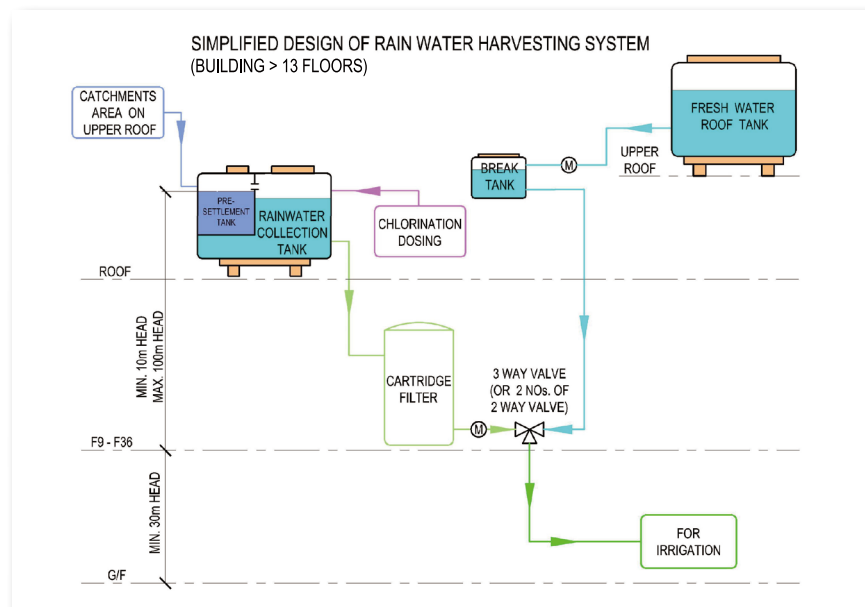
We incorporated hybrid ventilation system in Yau Lai Shopping Centre, Choi Tak Shopping Centre and Yau Tong Estate Phase 4 Shopping Centre (Domain) to save energy of air-conditioning and mechanical ventilation systems. The performance of the system on energy saving is under monitoring.

Water Conservation

Water conservation can be the single most important action that everyone can take to preserve one of our most precious resources. During the year, we have implemented a number of initiatives to reduce water usage or conserve water resources in our developments.

In 2012/13, we have promulgated specification to reduce the flushing volume of single flush water-closets from 7.5 litres to 6 litres. We have also completed a study for testing dual flush water closets which could comply with the BS EN 997 standard. The study finding helps us prepare specifications for using dual flush water closets target for promulgation in 2013/14. Specification requirements for the use of water efficient shower handsets and mixers have also been applied to all new building contracts.

The rainwater harvesting system (RWHS) has been adopted in our designs for many new development projects. Since April 2012, it has been allowed for in all new building projects in their scheme design. This year, we have continued the evaluation on the performance of RWHS at two shopping centres (Choi Tak and Yau Lai) and three estates (Yau Lai Estate, Lower Ngau Tau Kok Estate and Tung Wui Estate). The study findings help us measure the effectiveness of the system.



Simplified design of rainwater harvesting system

During the year, we have been installing the set-up for using reclaimed water from water-cooled air conditioning system for irrigation at the Domain. The collection of air-conditioning condensate, water consumption and water saving for irrigation will be monitored in 2013/14.

Noise Control

Noise Control During Construction and Demolition

During the development stage of our projects, we put substantial efforts in reducing the construction noise impact to the local community. In some projects where demolition works have to be undertaken, we encourage our contractors to use hydraulic concrete crushers (HCC) to replace noisier percussive concrete breakers for works. To facilitate the adoption of HCC, we have established associated operation guidelines which are available in our website for construction partners to follow.



Employing hydraulic concrete crusher at site

Road Traffic Noise Control

In some of our development projects, there may be places where our residents are affected by road traffic noise. We have been exploring and implementing mitigation measures, aiming to minimise road traffic noise impact to our residents. Over the years, we have been making substantial efforts to apply practical measures such as acoustic balconies, acoustic windows, architectural fins, and noise barriers in order to maintain minimal impact to our residents.



Acoustic balconies and architectural fins



Air Quality Improvement

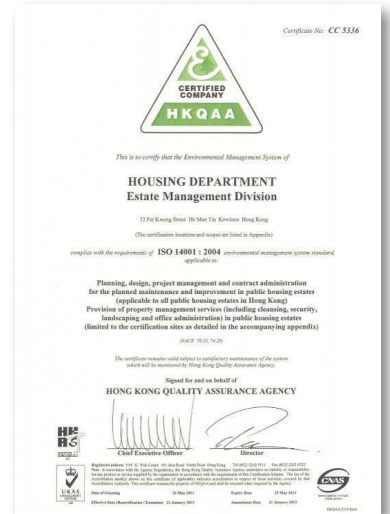
Electric vehicle charging facilities have been allowed for in indoor car parks of all new estates under design.

Initiatives in Existing Housing Estates

Environmental Management System for Estate Services

In recent years, we have been formulating green management initiatives and operational guidelines with the aim to develop a green and sustainable estate community for our tenants. Since 2010, we have started to develop an Environmental Management System (EMS) in accordance with the internationally recognised ISO 14001 standard for our property management operations. Adopting an effective EMS can provide assurance to ourselves as well as our external stakeholders that environmental impact is at all time measured and our performance will be continuously improved.

Following the ISO 14001 certification for the property management of three pilot estates in 2011, we extended the certification to 93 estates in 2012/13. Further extension of ISO 14001 to all of our estates is expected in 2013/14.



ISO 14001 certificate

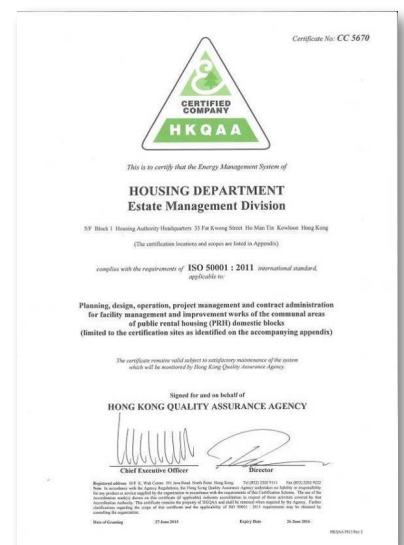
BEAM Plus

To benchmark the environmental performance of existing public rental housing (PRH) estates using scientific building assessment method, feasibility study was conducted for Kwai Shing West Estate in early 2013 to examine whether the levels of performance prescribed under the BEAM Plus for existing buildings, including energy use, water use, indoor environmental quality etc., can be achieved. To enhance environmental performance and promote sustainable living, environmental friendly designs and installations will be adopted in Kwai Shing West Estate, which is targeted to obtain BEAM Plus certification in 2014.

Energy Conservation

ISO 50001 Energy Management System

To fulfill our commitment to raise energy consumption efficiency in all the public facilities of PRH estates and to support energy saving and carbon reduction in Hong Kong, we have planned to implement ISO 50001 certification for all PRH estates in two phases in the coming two years. Kwai Shing West Estate is the first pilot estate to obtain the ISO 50001 certification in mid-2013, with its ISO 50001 implementation started in January 2013.

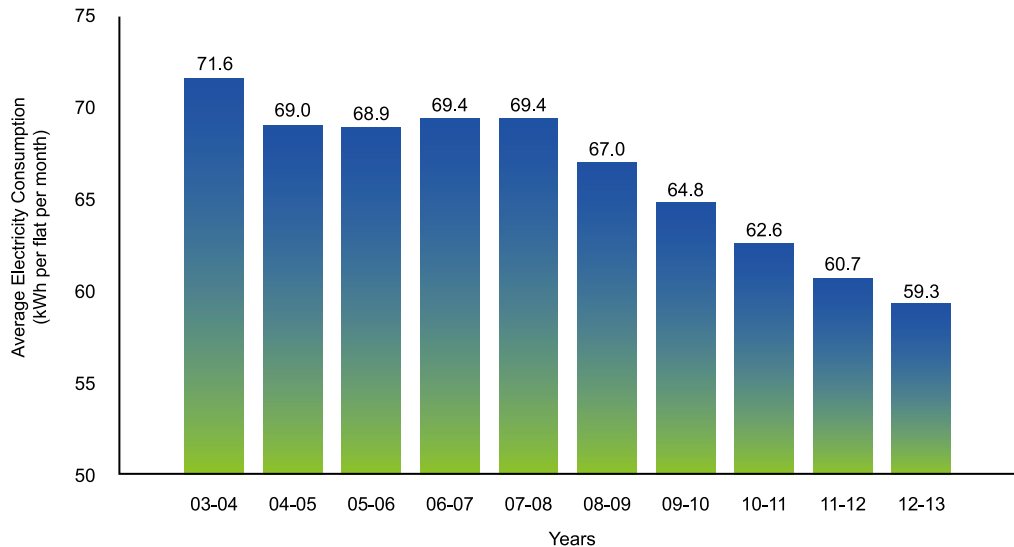


ISO 50001 certificate for Kwai Shing West Estate

Overall Energy Consumption

In 2012/13, our electricity consumption in the public areas of PRH blocks was 59.27 kWh per flat per month. Such consumption figure was 2.4% lower than the level recorded in 2011/12.

Electricity Consumption in Public Area of Estates



Adoption of Energy and Carbon Reduction Measures

During the year, our team put a lot of efforts in seeking opportunities for adoption of various energy reduction measures. Starting from 2012/13, we launched a 42-month programme of replacing electromagnetic ballast with energy-saving electronic ballast for the light fittings in all our existing estates, covering around 960 building blocks. This year, we have completed the replacement of energy-saving electronic ballasts for 260 PRH blocks and we expect all the replacement works will be completed by 2015.

To combat climate change, we have joined the Government's Energy Saving Charter to encourage community-wide participation in energy saving. By signing the Charter, we are committed to maintaining an average indoor temperature of 24-26°C between June and September 2012 at eight of our shopping centres with central air-conditioning supply, namely Choi Tak, Hoi Lai, Kwai Chung, Lei Muk Shue, Mei Tin, On Kay Court, Tin Yan and Yau Lai Shopping Centres.



Installation of energy-saving electronic ballasts

In view of the Government's initiatives in pursuit of carbon reduction in built environment and workplaces, we carried out carbon audits for 14 selected PRH domestic blocks of different types in 2012/13. The carbon audit results will be used for establishing baseline performance references for evaluating the performance of our buildings in our future studies for improvement.

Air Quality Improvement

We support the Government's initiative of introducing electric vehicles (EVs) for improving Hong Kong's air quality. Four carparks at Choi Tak Estate, Shui Pin Wai Estate, Yau Lai Shopping Centre and Kwai Chung Estate have been installed with EV charging facilities. In addition, we have provided incentives for customers to enjoy a special parking offer for EV charging with their parking fee waived from one to two hours.

Our EV charging facilities in different carparks are listed below:

Carpark	Charging facilities available
Choi Tak Estate	5 standard chargers
Shiu Pin Wai Estate	1 quick charger
Yau Lai Shopping Centre	1 quick and 6 standard chargers
Kwai Chung Estate	7 standard chargers



EV charging facility at Choi Tak Shopping Centre Carpark

Noise Control

We have been paying a lot of attention to ensure that noise generated from our domestic premises or public places (neighbourhood noise) does not affect our residents. Since 2005/06, we have not received any noise abatement notices from the Government.

Greening and Landscaping

Over the years, we have been taking a lot of initiatives to improve the greening and landscapes for our estates so that people can enjoy a high quality living environment. In addition to our two thematic gardens completed at Shek Yam East and Tsz Ching Estates in 2012/13, we have established various gardens with specific themes such as palm garden, herds garden, scented plants garden, butterfly garden, etc. where residents can explore the natural beauty of greenery during their leisure time. There are 11 green roofs installed at Wo Lok, Fu Shan, Choi Hung and Fuk Loi Estates, which are all well received by the residents. In addition, we established community gardens at 10 estates and completed landscape improvement works at 18 estates in 2012/13. We also improved the slope appearance of 10 slopes in existing estates by provision of planters for shrubs and creepers.



Rhododendron Garden at Shek Yam East Estate



Herbs Garden at Tsz Ching Estate

Organising Green Activities

To strengthen our tenants' environmental awareness, we collaborated with the local Estate Management Advisory Committees (EMAC) to organise Estate Green Fun Days at 18 PRHs during the period of October 2012 to January 2013. The Fun Days were all well received by the tenants, with educational message of green living being disseminated through display panels and game booths.



Estate Green Fun Day at Lung Hang Estate

Through EMAC we also promoted community participation in greening at 20 estates and organised tree planting days in 10 estates.

Our new phase of environmental programme “Green Delight in Estates” was launched in the second quarter of 2012. This long-term community environmental education programme aims to raise the environmental awareness among residents and to help them developing a lifestyle so that our living environment can be improved and sustained. Partnered with the green groups, the theme of this year programme was “Reduction of Municipal Waste”. Events under the theme included a green recipe competition, fun day fairs, technical workshops and field visits for our residents.



“Green Delight in Estates” launching ceremony



Waste Management

Since 2005, we have been actively implementing the Source Separation of Domestic Waste Programme across our PRH estates. During the year, we achieved the targets with the achievements of collecting about 27 600 tonnes of waste paper, 1 930 tonnes of plastic bottles, 1 130 tonnes of aluminium and 1 000 tonnes of used clothes for recycling in our estates.



Collection of recyclables

Collection of recyclables

Waste Type	Quantity of Waste Collected for Recycling (tonnes)					
	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Paper	14 748	14 194	17 935	21 376	23 849	27 589
Plastic Bottles	765	939	1 218	1 427	1 584	1 929
Aluminium Cans	310	496	520	865	1 054	1 133
Used Clothes	633	618	775	844	945	998

To facilitate our collection of recyclables, collection points for the recyclables had been established in all PRH estates during the year. Tenants were encouraged to take their recyclables to the collection points in exchange for cash or daily household items.



Promotion of recycle collection

A trial scheme on glass bottle recycling was launched in collaboration with Environmental Protection Department in six PRH estates in East Kowloon Region since December 2010. The trial scheme was extended to cover 29 PRH estates in Kowloon East Region in October 2012.



Glass bottle recycling

A trial scheme on food waste recycling using on-site composters has been launched in two PRH estates since December 2011. Another trial scheme was further launched in six more estates from end of 2012 under the “Green Delight in Estates” programme, using off-site food waste recycling (for conversion into fish feed) as well as on-site recycling by micro-organisms. Details are provided in the [Case Study](#).



Residents bringing their buckets of food waste to the ground floor of each block for food waste recycling

To raise the awareness of yard waste issues among tenants, we launched a pilot scheme aiming to collect unwanted Lunar New Year citrus potted plants and replant them during the year. The pilot scheme was well received by tenants, with 35 estates and one commercial centre participating in the scheme and over 1 000 pots of citrus potted plant collected. Supported by the Estate Management Advisory Committee, a presentation was organised by the Horticulture Unit of the Housing Department to share the technical skills and knowledge required for replanting citrus plants among the participants.



Lunar New Year Citrus replanting

Tree Management in Estates

Over the years, our Tree Management and Horticulture section has been responsible for formulating long-term plans and measures for effective execution of tree management and horticulture works. Our team members have been taking considerable efforts to implement the tree management programmes in order to maintain our trees in good conditions.

To manage approximately 100 000 trees is never an easy task. As such, we have established a comprehensive electronic tree database to assist in planning our management work and conducting our annual tree risk assessment exercise effectively.

To promote the knowledge and interest on trees among PRH residents and management staff, we organised 15 training courses and had successfully recruited 630 volunteers of Estate Tree Ambassadors to assist in our tree management works during the year.

Asbestos Abatement

To protect public health, our Asbestos Abatement Programme is in place to abate the remaining asbestos containing materials in existing HA-managed building blocks. During the year, we completed the asbestos removal works for one school block at Cheung Ching and one domestic block at So Uk Phase 2.

We conducted two surveys last year to monitor the condition of asbestos containing materials in existing PRH estates to ensure that they were in satisfactory conditions. A registered specialist asbestos contractor was also engaged to carry out emergency repair to underground asbestos cement water-mains for all PRH estates.



Our staff from the Tree Management and Horticulture Section conducting annual tree risk assessment



Tree Ambassador Training

Initiatives in Office at Work

Environmental Management System Certification

Our Development and Construction Division and Estate Management Division achieved ISO 14001 EMS certification in June 2009 and May 2011 respectively. Our Corporate Services Division has been implementing an EMS in accordance with the ISO 14001 standard since April 2013 for the provision of property management functions at HA Headquarters (HAHQs). For our Independent Checking Unit, we target to complete the ISO 14001 certification by mid 2014. Through the implementation of EMS, we adopt a systematic and effective approach to oversee and manage the HA's environmental aspects.

Carbon Management and Energy Saving

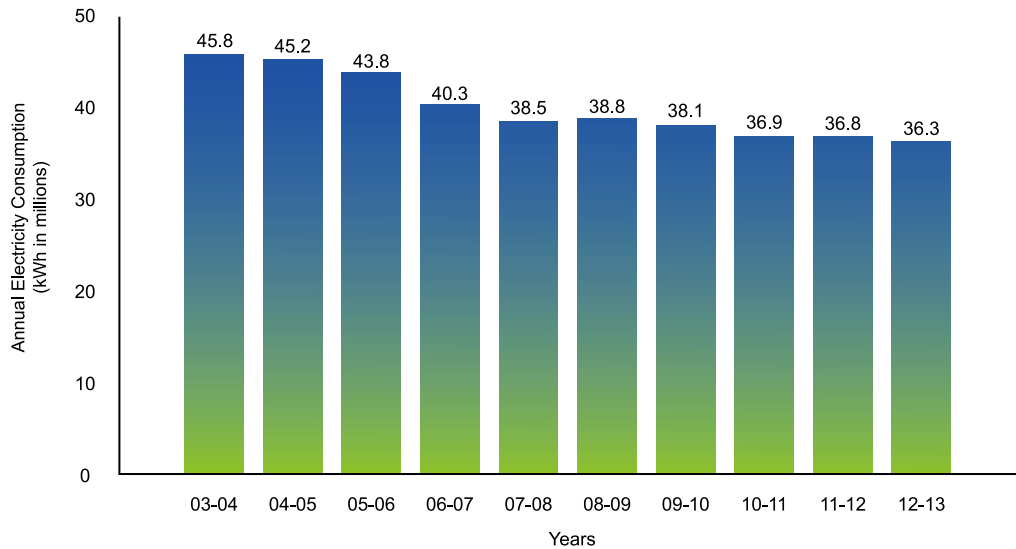
To monitor our carbon footprint and identify opportunities for reducing carbon emission, we have been conducting carbon audits for five selected HA premises including HAHQs and Lok Fu Customer Services Centre since August 2008. Data for the past four years had been captured and analysed to identify room for improvement. Further reduction in carbon emission had been observed in selected premises after the implementation of various improvement initiatives.



Retrofittings by electronic ballast at HAHQs
Block 3

In 2012/13, our electricity consumption was 36 250 640 kWh, which was decreased by 5.9% as compared to our baseline consumption in 2007/08.

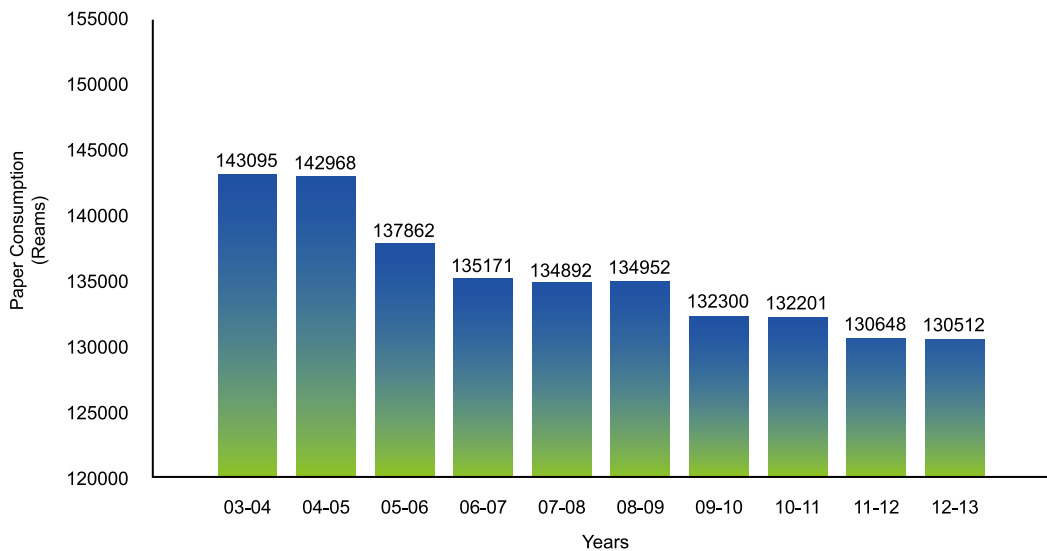
Annual Electricity Consumption in HA Offices



Waste Management

By putting substantial efforts in implementing various waste management initiatives in our offices, we have met our target and achieved a 3.2% reduction of paper consumption as compared to our baseline consumption in 2007/08.

Paper Consumption in HA Offices



We continue to use environment-friendly paper as a prerequisite in printing of all publicity materials (except sales and marketing publications). Furthermore, we achieved a collection of 42.7 kg of waste paper per staff, which exceeded our target of 20.7 kg. We also arranged to collect all disposed mercury-containing lamps in HAHQs for special waste treatment.

Water Conservation

We continue to record and monitor water consumption at HAHQs. In 2012/13, the water consumption was 11 830 cubic metres which was a 22.6% reduction against the consumption in 2007/08.

Environmental Awareness and Green Activities

Staff awareness is crucial to environmental protection. To this end, we have sent out regular reminders to appeal to and encourage staff for saving energy, water and paper.

To enhance staff environmental awareness and knowledge, we organised 18 seminars regarding waste management, the latest environmental legislation and other environmental issues during the year. We organized the HA Staff Environmental Awareness Quiz in August to September 2012, whereby dedicated web pages were established to facilitate our staff to enter the quiz anytime during the quiz period. We have also conducted four environmental displays at HAHQs Green Corner to disseminate environmental messages and information.



ISO 14001 Environmental Management System
Internal Auditor Training



Green Corner at our Headquarters

In June 2012 and February 2013, HA joined hand again with the Community Recycling Coop of Industrial Relations Institute, a non-profit making charity organisation, to hold two Environmental Collection and Recycling Campaigns. Collection counters were set up at the HAHQs, Lung Cheung Office in Wong Tai Sin and the Customer Service Centre in Lok Fu. We collected about four tonnes of reusable items including electrical appliances, books, household items, handbags, shoes, beddings and decorations, etc. These activities not only contribute to waste reduction but also demonstrate our care to the community by donating the surplus items to the needy.



Director of Housing, Deputy Directors and Assistant Directors gave donation at HAHQs



The HA staff at the HAHQs donated reusable household items

Over the years, we have invited our staff to participate in various external environmental activities such as seminars on green office and energy efficiency, the Hong Kong Tree Planting Day and the Community Chest's Green Day.

On 23 March 2013, about 150 participants including members from our volunteer group and their families as well as tenants from six PRH estates joined the annual Hong Kong Tree Planting Day. During the event, more than 10 000 saplings were planted at Sai Kung East Country Park.



Our staff members, their families and our tenants participated in the Hong Kong Tree Planting Day

During the year, we actively promoted green living in the community. We participated in the Green Carnival organised by the Green Council on 3 February 2013 at the Kowloon Park. A game booth and display panels were set up to deliver messages of green living to participants.

As in the past, we fully support the annual Hong Kong Flower Show. This year, we designed a landscape of “Home of Blossoms” which won the Gold Award for Outstanding Exhibit (Landscape Display). With an octagonal prism in the setting to produce reflections under the sun and the way that plant walls and flower beds grew in profusion, the “Home of Blossoms” illustrates how the HA commits to provide cosy homes with greening and environmental protection elements.



HA's booth at Green Carnival 2013 to promote green living



Our floral display “Home of Blossoms” in the Hong Kong Flower Show