

持續發展社區

Building Sustainable Communities

我們在建設屋邨時，致力營造可讓居民產生認同和歸屬感的社區，令他們樂於以此為家，彼此關懷互助，共建和睦鄰里。

In building our estates, we seek to create a sense of identity and community, where residents can feel at home in their surroundings, enjoy friendly neighbourhoods and contribute to a caring community.





Building Sustainable Communities

In the building and construction of new estates, we enjoyed a satisfactory year, not only seeing the completion of 19 050 new flats in eight estates – Ching Ho Estate in Fanling, Mei Tin Estate in Sha Tin, Un Chau Estate in Sham Shui Po, Yau Lai Estate at the Eastern Harbour Crossing, Upper Ngau Tau Kok Estate, Lam Tin Estate, Sau Mau Ping Estate and Choi Ying Estate in Kwun Tong – but also the fruition of a number of new design concepts and practices. At the end of March 2009, our total housing stock stood at around 694 000 units in 195 estates and courts.

We also added 3 800 square metres of retail space as well as 310 parking spaces at Choi Ying Estate, Upper Ngau Tau Kok Estate and Ching Ho Estate. The new retail facilities, including those in Ching Ho Estate and Tin Ching Estate, all feature the use of street-front shops with open arcades instead of enclosed shopping centres, thus bringing shoppers into the streets. A new lift tower was also completed, connecting Kwai Chung Estate with Tai Wo Hau Estate and the MTR station in its vicinity. This new facility, which forms part of the 18-year redevelopment of Kwai Chung Estate, provides more convenient access for over 40 000 people and makes it easier for them to move between the different height levels in the area.

New Developments

The planning and production of public rental housing (PRH) takes place over long periods of time, often requiring at least five years from planning and design to production and completion. The availability of land resources is therefore key to our production and we must work closely with relevant government departments to identify suitable land for PRH development. When suitable land resources have been identified, we seek to collect views from existing inhabitants in the district, engage them in an on-going dialogue and address their



Yau Lai Estate is one of the eight new estates completed this year.

concerns. These extensive public consultations often result in the inclusion of various community facilities, ranging from pedestrian bridges and lift towers to community centres and other public amenities, in the new development. During the year, as a result of consultations held with nine district councils in relation to 25 sites, coupled with our on-going inter-departmental liaison with the government, we were able to obtain planning approval for five projects.

In 2008/09, four piling contracts and four building contracts were awarded while at the end of March 2009, about 33 000 units in around 18 projects were under building construction.

Supporting the government's drive to create job opportunities to combat the economic downturn, we advanced three projects which will bring forward the provision of about 1 000 jobs for the construction industry.



The landscape garden at Tin Ching Estate.



We strive to ensure social, environmental and economic sustainability when designing and building our estates.

People-oriented and Sustainable Principles

In planning, designing and building our estates, we are guided by two major principles – to be people-oriented as well as functional and cost-effective. These two guiding principles are further supported by our objectives to ensure social, environmental and economic sustainability.

Social Sustainability

In ensuring a sustainable social environment, we need to do a lot more than simply construct housing blocks. In building our estates, we seek to create a sense of identity and community, where residents can feel at home in their surroundings, enjoy friendly neighbourhoods and contribute to a caring community.

Adopting Universal Design

As a first step in this process, we plan and develop estates using site-specific design to overcome site construction constraints, and make the best use of the site's features. Simultaneously, our Universal Design principles, adopted since 2002, ensure that PRH estates will provide "socio-spatial equity" for everyone. In other words, we are now building our estates to meet the diverse needs of all residents, enabling "ageing in the community" and creating a safe and accessible environment for the elderly and the physically impaired, so that they can live comfortably in the community. Facilities, such as lifts and escalators in hilly areas, access ramps and barrier free access, tactile paths for the visually impaired, audio-visual information as well as safety features in the home, all contribute to this healthy, inclusive and more sustainable living environment.



Tactile paths for the visually impaired are part of our Universal Design.

Many of these facilities are now entering a new generation. Working in partnership with the Hong Kong Society for the Blind, for example, we have created our first multi-sensory map at Shek Kip Mei for both residents with normal vision as well as the visually impaired.

Engaging the Local Community

In our bid to foster a sense of identity and create common neighbourhoods, new estates, and redevelopment estates in particular, are being planned with their heritage, history and locality in mind. Heritage points, for instance, have been incorporated into the redevelopment of Shek Kip Mei Estate, reflecting our own housing history in the area (built in the early 1950s, the original estate at Shek Kip Mei was Hong Kong's very first public housing development). We also engaged the community in the planning and design process, holding partnership workshops, consultations, exhibitions and competitions to collect neighbourhood views and local input for the new development. This process of engagement was also adopted in the development of Ma Hang Headland Park and Yau Tong Estate. More recently, the involvement of residents in Ngau Tau Kok has led to the inclusion of a cultural spine, which will help to preserve the area's heritage, in the design and redevelopment of Lower Ngau Tau Kok Estate.

Continuing this engagement with the community during the year, public engagement workshops were held under the supervision of three Assistant Directors of the Housing Department and the facilitation of independent



Common and leisure areas at Upper Ngau Tau Kok Estate aim to preserve the heritage of the district.

specialists, with regard to the redevelopment of So Uk Estate as well as the new PRH development being planned at Anderson Road.

Common and leisure areas, public spaces and community facilities are also being carefully designed to promote social interaction and foster harmonious surroundings. In Lower Ngau Tau Kok Estate, for example, at the request of the local District Council, part of the site has been set aside for building a cross-district cultural centre, helping to meet the needs of the community and thereby ensuring greater sustainability into the future.

This sense of community is also taken into consideration when designing commercial facilities in our new estates. Designs for Kai Tak and Shek Kip Mei include the building of street-front shops to bring life into the streets while also fostering a sense of community within the neighbourhood. Similarly, new shopping centres like Yau Tong Shopping Centre and Yau Lai Shopping Centre at the Eastern Harbour Crossing Phase 6 will be family-based, providing facilities not only for shoppers but also for children and diverse members of the community.



Street-front shops help bring life into the streets.

Environmental Sustainability

Green design practices form the basis of our environmental sustainability programme. Green design not only ensures better health and well-being for residents, saves money and energy, and reduces atmospheric pollution; it also contributes to more pleasant and attractive surroundings.



Green rooftops reduce building temperatures while also enhancing the visual appeal.

Micro-climate Studies

First introduced in 2001, micro-climate studies provide the starting point for our green design activities. Now used in the design and development of all our new estates, these studies employ computer simulations to look into a site's micro-climate – its airflow and wind speeds, solar heat and ambient noise levels – to determine the best use of the external space. They help us build living spaces that let in as much natural ventilation and daylight as possible, and also ensure that buildings are positioned to enjoy the best that the natural environment has to offer. Aiming to provide a healthier and more comfortable living environment for residents, while minimising pollution and saving energy, we have applied these studies in over 33 developments as at the end of March 2009. Choi Ying and Upper Ngau Tau Kok

Estates, completed during the year, were among the first developments to use these micro-climate studies in their design and construction.

Estate Greening

Extending this concept of a healthier and more sustainable living environment, we are working towards the more comprehensive greening of our estates. Greener surroundings promote cleaner air, better heat dissipation, greater well-being and more attractive surroundings. A major initiative in this direction is the greening of rooftops and walls, which not only offers obvious visual appeal but also insulates buildings from the heat and reduces building temperatures. Pilot schemes are currently being conducted with the installation of environmental façades, vertical green panels as well as green rooftops in a number of estates.

Our efforts to provide green rooftops have been particularly interesting, as we experimented with different species to determine which plants would best survive in the rooftop conditions. Grass is being used in instances where rooftops can bear the additional weight of the soil and moisture. However, grass needs fairly constant maintenance as it has to be cut regularly. A new plant species known as Sedum, which requires little or no maintenance but is extremely decorative, was therefore introduced to the roof at Ching Ho Estate, the market roof at Fu Shan Estate, as well as the contractor workshop roof at Wo Lok Estate.

Taking this concept a step forward and creating more open and natural spaces for residents, we are also exploring the inclusion of sky gardens in new estates. The provision of sky gardens for greater social interaction has accordingly been included in the design for the new development at Kwai Luen Road.



The Action Seedling campaign aims to foster a greater sense of belonging and community.

Action Seedling

This Community Participation Scheme engages our tenants, contractors and the local community in greening public housing projects while realising their social responsibilities. Under this scheme, new works building contractors join hands with Estate Management Advisory Committees, non-governmental organisations (NGOs) and schools to foster a greater sense of belonging and community among our residents, contractors and the community; while also promoting the benefits of a green lifestyle.

Seedlings are given out to participants who nurture the plants at home until they are ready to be transplanted into the planters and gardens of new estates. The first phase of the scheme was launched in 2007, with hundreds of residents, students and community members from seven estates helping to look after 5 000 seedlings, which were subsequently replanted as part of the estates' green landscapes. The first phase is now complete; while the second phase, also involving seven estates, is due for completion in 2009.

A Healthier Living Environment

The design of our new estates also takes the need for clean and healthy surroundings into consideration in the building of a sustainable lifestyle. A number of improvements have been introduced in recent years. One of the most significant being the implementation of the "common W-trap" waste water system developed in collaboration with the City University of Hong Kong after the outbreak of the SARS epidemic. W-traps redress the problem of dried-up floor drains, which was identified as a factor in the spread of the disease. This design is now being adopted in all our new estates, with Phase 3 of Yau Lai Estate at the Eastern Harbour Crossing Site being the first development to see its implementation during the year.

Ensuring uninterrupted water supplies for tenants, twin roof tanks are being incorporated into all our new developments. The benefit of these dual tanks is that one tank can remain in use while the other is being cleaned. For better and more hygienic disposal of rubbish, refuse compactor systems are being installed, together with biochemical de-odourisers at refuse collection points, in all new estates. "Mail-box" type rubbish bins are also being tested at the Eastern Harbour Crossing Site Phase 5 to facilitate the separation of domestic waste at source.

Green Construction Methods

Completing the above green picture, we make the best use of environment-friendly construction methods as well as innovative technologies to save energy and conserve resources. We continue to lead the industry with initiatives such as modular design, prefabrication and hard-paved construction methods. These techniques enhance building quality and site safety, minimise waste, generate less noise and reduce pollution. At the same time, eco-friendly and more durable materials help to



Green construction methods are widely adopted in our projects.

optimise the life cycle of our buildings and also benefit the environment. Examples include the use of energy saving light fittings as well as the installation of the new “machine-roomless” lifts. The performance of the first such lift at Mei Tin Estate has proven to be satisfactory.

Since 2002, all our projects have been designed according to the Building Energy Codes issued by the Electrical and Mechanical Services Department, meeting energy efficiency requirements in lighting, electricity, air-conditioning, lift and escalator installations. With these designs in place, it is estimated that in a typical housing block, a saving of around 6% in electricity or around \$40,000 a year can be made. Seeking to improve these figures even further, new technologies to conserve more energy in our buildings are under trial. These include the testing of outdoor lighting systems powered by renewable wind or solar energy, the installation of solar panels at Lam Tin Estate, as well as the planned implementation of hybrid ventilation systems to regulate the natural cooling of air-conditioning systems for the retail facilities at Yau Tong Estate and the development at Choi Wan Road. Furthermore, the Shopping Centre at Kai Tak Site 1A will adopt a distinct cooling system for better energy efficiency.



An outdoor lighting system powered by solar energy is under trial at Lam Tin Estate.

To reduce water consumption, systems to harvest rain water for irrigation purposes are being installed both at the Eastern Harbour Crossing Site Phases 5 and 6 and Yau Tong Redevelopment Phase 5, while dual flushing systems have been adopted in Aldrich Bay Phase 5.

Economic Sustainability

Even with the highest levels of social and environmental sustainability, our housing programme would not be sustainable if we do not achieve economic sustainability, through both functional and cost-effective design.

We therefore closely monitor the cost-effectiveness of our buildings, benchmarking them to similar buildings in the private sector. According to building tenders received in February and March 2009 and cost consultant reports, construction costs for our superstructures were in general some 36% lower than similar projects in the private sector. With new software introduced to optimise the structural design of our buildings, it is hoped that this figure will improve even further.

At the same time, economic sustainability is attainable only if we also ensure the quality of our buildings, improve our procurement systems, and protect the well-being of our workforce.

Ensuring Built Quality through Third Party Checks

As our buildings do not fall under the control of the Buildings Ordinance, the Independent Checking Unit (ICU) provides third party monitoring and control of all new and existing Housing Authority (HA) developments and alteration works, in line with the Building Department’s practices. It is also responsible for exercising the Building Authority’s powers, under delegated authority from the Director of Buildings, over former HA buildings under the Home Ownership Scheme and Tenants Purchase Scheme as well as the commercial facilities now owned and managed by The Link REIT.



Efforts are made to secure wage payments for workers and ensure their well-being.

In addition, the unit regulates the use of all lift and escalator installations within our estates in line with the Lifts and Escalators (Safety) Ordinance. Reporting directly to the Director of Housing, the ICU also receives support and guidance from the Director of Buildings.

Improving construction standards in our new buildings, we are migrating from British Standards to European Standards. To facilitate this migration, a structured review of our construction specifications is currently being conducted. Also, with the adoption of site-specific design over the past few years, we have gathered widespread experience which, together with the development of a range of Modular Flats, will further enhance economies of scale in future projects.

Driving the constant improvement of our workforce, we now require 100% trade tested workers in 32 out of 34 trades in new works contracts. The requirement currently stands at no less than 100% and 85% skilled workers in 10 and 22 trades respectively. Our Performance Assessment Scoring System (PASS) also continues to play a pivotal and systematic role in assessing, monitoring and measuring the effective performance of our buildings, building services and with piling contractors. Trial runs for PASS were also carried out in two demolition contracts. In addition to these conditions, our Quality Maintenance Contractors have been required to gain ISO 14001 certification since December 2007. This requirement was extended in April 2008 when all building and piling works contractors also had to obtain ISO 14001 and OHSAS 18001 certification, with a grace period of one year.

Enhanced Procurement Practices, Specifications and Systems

In our procurement practices, we work in partnership with our contractors, seeking to enhance performance at every stage of the construction process. Since 2000, we have been partnering with piling and building

contractors to foster a common vision and shared goals, including best contracting practices, ethics and integrity. Another area where we work in very close collaboration is the Dispute Resolution Advisor System. First introduced in all our building and foundation contracts in 2004, the system makes sure that we work closely with contractors to avoid or ensure the speedy resolution of disputes, preventing their escalation into larger and more costly problems.

In mid-2008, we conducted a comprehensive completion workshop for all building contracts completed earlier in the year to review the effectiveness of our contract administration. Recently, we launched another initiative, our new Integrated Procurement Approach for the PRH development at Kai Tak Site 1B. Using a hybrid approach, it aims to reap the benefits of both a “design and build” model in conjunction with the more traditional “design-tender-build” approach. These new tactics aim to make the best use of external resources for innovative design and technology advancement while at the same time maintaining our necessary quality controls.

Measures to improve the monitoring of contractors and to ensure the payment of wages to workers have been incorporated into all new works contracts. A consultancy study has also been conducted to review our procurement systems, to determine ways in which we can better secure wage payments for workers. In addition, a Working Group for Monitoring Wages Payment to Workers has been set up while 23 Labour Relations Officers also keep in touch with workers at our sites to ensure their care and well-being. On-demand bonds for all new works contracts have also been implemented.

Improving Site Safety

While site safety is our topmost priority, we unfortunately experienced two fatal accidents as well as a slight



Site safety is our topmost priority.



Construction of the Amenities and Community Building at Tin Ching Estate has been advanced to create more job opportunities.

increase in the accident rate at our building sites during the year. Investigating the situation, we have identified that some of the lifting procedures might have contributed to these casualties and have thus alerted contractors to the problem.

The accident rate at our sites rose slightly to 16.1 injuries per thousand workers in 2008 from 11.9 cases in the previous year. Despite this slight increase, our accident rate overall has declined steadily over the years from 55.8 cases per thousand workers in 2001, while the figure for the overall construction industry decreased from 115 to 61.4 in the corresponding period.

Reinforcing our safety commitment – to lower accident rates and achieve zero fatalities, we continue to enhance our site safety strategies. In addition to contractual controls which help maintain site safety to the highest standards, our Pay for Safety Incentive Scheme encourages contractors with incentive payments for their health, safety and positive environmental practices. New contracts also take into account the contractor's previous record of serious or fatal accidents.

Promoting better awareness of safety on a day-to-day level, the Housing Department Site Safety Subcommittee, consisting of representatives from the Housing Department, government departments, contractors' associations and workers' unions, continue to meet on a regular basis.

Creation of Jobs

During the year, the programme for several projects was advanced in response to the government's call for the creation of job opportunities in view of the financial tsunami and the resulting economic downturn in 2008. Such projects include the demolition of Kwun Tong Flatted Factory, the construction of the Amenities and Community Building at Tin Shui Wai area 104, and the integrated contract for the design and construction of Kai Tak Site 1B.

Measures to Alleviate Contractors' Financial Burden

In the wake of the financial tsunami in 2008, we implemented a series of measures to alleviate financial difficulties experienced by our contractors. The measures include reducing on-demand bonds from 10% to 3% for foundation and new works building contracts, the early payment of insurance premiums, shortening the payment period from 21 days to 14 days, additional interim payments between monthly payments for new works contracts, and new interim payments for estate works orders for maintenance work. These initiatives were introduced in the spirit of partnership and collaboration that we share with our contractors.

Construction Cost Trends

The construction price index continued its sharp rise in the first quarter of 2008/09 due to on-going currency fluctuations coupled with rapid cost increases in a number of construction trades, ranging from concrete, steel and metalworkers to joiners and plumbers. However, this upward price trend subsequently reversed to a downward one in the second half of the year, mainly due to the substantial decrease in the material cost of steel reinforcing bars after the global economic downturn and the overall weakening of international currencies against the US Dollar. ■



The Kwai Chung Estate Story

The new Kwai Chung Estate brings many of our concepts for sustainable living into life.

Kwai Chung Estate is not only our largest public housing estate providing homes for some 40 000 people, it also encapsulates the story of public housing and the HA's development in Hong Kong. Built in the 1960s to meet the needs of a rapidly growing population in a time of severe housing shortages, the original estate was basic. Housing 22 000 people in 42 seven-storey blocks, the "walk-up" Mark 2 and 3 buildings consisted of communal toilets and washrooms. By the late 1980s, these shared facilities were no longer considered acceptable and Kwai Chung Estate was identified for redevelopment under our Comprehensive Redevelopment Programme (CRP).

Planning commenced in early 1990; by 2008, 18 years later, the redevelopment was complete. The new estate is now one of our flagships as it brings many of our concepts for sustainable living into life. Its well-thought-out design creates a community identity while its "civic hub" encourages social interaction. This sense of community was further enhanced by the focal use of land, the preservation of mature trees and existing estate features such as temples, the neighbouring Kai Fong Association and local schools. New community facilities and attractive recreational spaces, together with the redesignation and realignment of roads, added to the transformation of the district. The end result is not only a modern estate that provides homes for people of all ages with a green, healthy and convenient living environment, but also the creation of a vibrant "hill-town" community.



An attractive green feature.



The "civic hub" design brings essential community facilities together in a centrally accessible location.

To minimise the impact on residents, the redevelopment was carried out in phases. Residents affected by Phase 1 of the redevelopment were moved to new reception estates in the district and, as the new blocks went up, they were used to rehouse residents from the rest of the estate. This in-situ rehousing, reprovision and retention helped to maintain the core community and its characteristics. Out of the 22 000 original tenants, 7 000 were rehoused in the new estate. The wishes of the elderly, in particular, to be rehoused in Kwai Chung were respected. During the redevelopment, essential facilities were maintained and every effort was made to retain existing community characteristics.

With the redevelopment, the number of flats increased from 8 850 units with shared facilities to 13 736 self-contained homes. The "civic hub" design brings essential



The old Kwai Chung Estate.

community facilities such as the commercial centre, market, car park, welfare facilities and public transport interchange together in a centrally accessible location, creating a focal gathering point within the estate. Extending this idea, a podium garden above the facilities provides a place for residents to meet and socialise.

The estate environment is predominantly vehicular free. Making it easy for tenants to move around, a pedestrian walkway system consisting of footbridges, escalators and lifts addresses the differing height levels, connecting not only the different blocks to each other, but also the civic centre and the Tai Wo Hau MTR station. The road network was also redesigned to improve the site layout and traffic flow. This is in direct contrast to the old estate which had no proper public transport facilities, shops were scattered randomly in different blocks, and the estate was broken up into small, irregular sites by the roads in the area.

The focus on quality living was further heightened by our efforts to provide a green and healthy environment. Over 60% of the estate area is landscaped and open spaces have increased from about 4.8 to 7.5 hectares. More than 100 old trees were incorporated into the new estate and 160 000 trees and shrubs were planted. A bamboo garden, a podium garden as well as green noise barriers complete this green picture.

The estate's redevelopment has broken new ground in a number of areas. The last phase of the project pioneered the innovative and extensive use of precast and prefabrication technologies. The Automated Refuse Collection System, one of the largest in Hong Kong, enables the collection and handling of 34 tonnes of domestic refuse from the



The modern Kwai Chung Estate provides homes for people of all ages.

entire estate in a totally enclosed environment to improve environmental hygiene.

Reaffirming this innovation and commitment to quality, Kwai Chung Estate has won a number of awards. Phases 3, 4 and 5 received the Residential Category Merit Award under the Quality Building Award 2008. The biennial awards are organised by nine building, construction and property-related professional bodies to recognise outstanding quality and teamwork while promoting the highest standards of professionalism and a collective commitment by the building industry. The final phase of the development also won a commendation in the Joint Structural Division Special Award 2008, co-hosted by the Hong Kong Institution of Engineers and the United Kingdom's Institution of Structural Engineers. The judges commended it for its engineering approach, integration, economy, innovation, buildability, unique features, sustainability and serviceability.

Building on the success of Kwai Chung Estate, we will maintain our commitment to sustainable living and caring communities, seeking to achieve high standards of quality in our activities as well as high standards of living for our residents.