

PUBLIC RENTAL HOUSING DEVELOPMENTS AT
KAI TAK SITES 1A & 1B

Legislative Council Panel on Housing 立法會房屋事務委員會

Public Rental Housing Developments at Kai Tak Sites 1A & 1B

啓德第一甲區及第一乙區公共房屋發展

6 Feb 2012
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PUBLIC RENTAL HOUSING DEVELOPMENTS AT
KAI TAK SITES 1A & 1B

Purpose 目的

This paper is to brief Members on the Hong Kong Housing Authority (HA)'s public rental housing (PRH) Developments at Kai Tak Sites 1A and 1B. The HA has adopted the theme of "Homes in the Park" and incorporated a series of **environment-friendly features** for the design and construction of the two projects.

本文件旨在向委員報告香港房屋委員會(房委會)於啓德第一甲區及第一乙區的公共房屋(公屋)發展項目。房委會在這兩個公屋發展項目以**"綠茵家居"**為主題，並在設計和施工上採用了多項**環保設施**。

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT
KAI TAK SITES 1A & 1B

Background 背景



The HA's PRH Developments are located at the north apron area of the Kai Tak Development near Richland Garden, Choi Hung Estate, Rhythm Garden and the future Kai Tak Station of the Shatin-Central Link.

房委會的公屋發展位於於啓德發展區的前啓德機場北停機坪，鄰近翠頤花園、彩虹邨、麗晶花園及未來的沙中線啓德站。

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT
KAI TAK SITES 1A & 1B

Background 背景



The two estates provide about 13,300 flats for 34 000 residents in 15 domestic blocks. The first population intake will take place in 2013. The first phase of roadworks and District Cooling System will be completed in 2012. The future Shatin-Central Link will be completed around 2018.

兩個屋邨包括15幢住宅大廈，提供逾13,300個單位，為約34 000人提供居所，首階段將於2013年入伙。首期道路和區域供冷系統將於2012年完成。未來的沙中線將於2018年通車。

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT
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Homes in the Park 綠茵家居

HA has adopted the design theme of "Homes in the Park" for the two estates with the following key features -

- passive building designs;
- green and healthy environment;
- environment-friendly design initiatives; and
- green construction techniques.

房委會在兩個屋邨中均以「綠茵家居」為設計主題，並有以下的主要特色：

- 順應自然的建築設計；
- 綠化及健康的環境；
- 環保設施；及
- 低碳建造技術。

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT
KAI TAK SITES 1A & 1B

(a) Passive Building Design (甲) 順應自然的建築設計



Animation

Micro-climate studies to optimize the planning and design of buildings and outdoor spaces to provide a healthy and quality living environment for tenants. Domestic blocks to capture the prevailing south-easterly wind for most of the year to maximize natural ventilation.

為了讓居民享受優質而舒適的生活，住宅樓宇及室外空間的設計參考了微氣候研究。在設計住宅樓宇的時候，我們採用的佈局可引入常年盛行的東南風，以善用天然通風。

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

(a) Passive Building Design
(甲) 順應自然的建築設計



Retail facilities are provided in the form of street front shops in pedestrian precincts. Arcades on the first floor level are naturally ventilated.
零售設施採用行人區街舖設計，而一樓的商場走廊設計成天然通風。

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

(b) Green and Healthy Environment
(乙) 綠化及健康的環境



Central park will be fully integrated with smaller pockets of open area with seating, planters and trellises at the edge of the blocks together with covered foyers to provide communal places for residents.
中央公園與綠化空間渾然相融，大堂周邊的小花園設有座椅、花槽及花槽以及有蓋的大堂入口為居民提供聚腳點。

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

(b) Green and Healthy Environment
(乙) 綠化及健康的環境



Greening ratios over 30% of the respective site area, including at least 20% at the pedestrian zone. The rest comprises roof greening and vertical greening.
綠化比例超過30%的地盤面積，當中有至少20%位於行人區，其餘包括屋頂綠化及立面綠化。

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

(b) Green and Healthy Environment
(乙) 綠化及健康的環境
Signal Hill 信號山



Aircraft Icon 飛機標誌

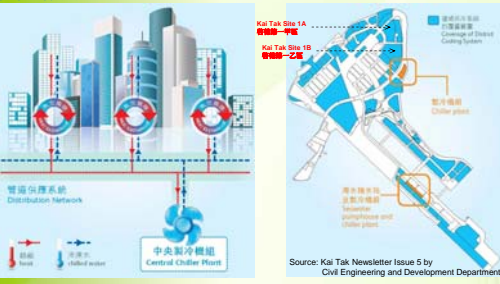
Exhibition Gallery 展覽廊

Aviation elements such as the Signal Hill and aircraft icon have been adopted as design features. Exhibition gallery is planned to showcase some recollections and unique memories of Kai Tak to enhance a sense of belonging amongst the residents.
設計上採用了航空元素如信號山及飛機標誌。在室外休憩用地將會設置展覽廊，展示啓德的歷史和獨特的面貌，以增加居民的歸屬感。

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

(c) Environment-friendly Design Initiatives
(丙) 環保設施



District Cooling System will provide chilled water to the air conditioning systems of the retail facilities, kindergarten & estate management office.
區域供冷系統將冷凍水經由地下水管網絡送到零售設施、幼稚園及屋邨管理處的空調系統。

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

(c) Environment-friendly Design Initiatives
(丙) 環保設施



Electric Vehicle Charging Facilities (with wiring) will be provided at 30% of parking space.
30%的停車位會安裝標準的電動車輛充電設施。

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

(c) Environment-friendly Design Initiatives
(丙) 環保設施
Renewable Energy & Energy Efficient Installations
可再生能源及高能源效益之設備

Photovoltaic Panels (PV) located at roof of building blocks
 大廈的天台設有光伏發電系統



Light Emitting Diode (LED) Downlight at G/F entrance lobbies
 地下入口大堂設有發光二極管筒燈



Two-level Lighting Control at lobby and corridor
 大堂及走廊設有兩級光度照明控制系統



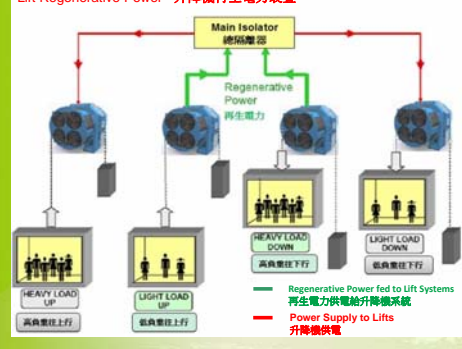
Smart Meters and Display Panels at ground floor lobbies to show the average electricity and water consumptions per flat of individual blocks
 地下大堂設有顯示屏顯示各座大廈每個單位的平均耗電量及用水量



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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

(c) Environment-friendly Design Initiatives
(丙) 環保設施
Lift Regenerative Power 升降機再生電力裝置



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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

(c) Environment-friendly Design Initiatives
(丙) 環保設施
Rainwater Harvesting System helps reduce fresh water consumption by providing filtered rainwater for irrigation while **Root Zone Irrigation System** supplies water directly to plant roots. Evaporation of water can thus be minimized and the amount of irrigation can be reduced.

雨水收集灌溉系統有助於節約淡水資源，它把雨水收集後，經過過濾，然後用來灌溉。**根部灌溉系統**直接提供水份給植物的根部，可以減低灌溉水蒸發的機會，從而節約用水。




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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

(d) Green Construction Techniques
(丁) 低碳建造技術
Marine Mud Cement-Stabilization Method for Backfilling 將海泥以水泥穩固後用作回填




By treating the marine mud with appropriate proportion of cement and sand, we can re-use it for in-situ backfilling thereby **alleviating the pressure on landfill sites**.

我們將海泥混合一定份量的英泥和沙土後將其強化，原地回填在地基旁的坑穴，此舉可避免將挖掘出來的海泥傾倒於堆填區。

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

(d) Green Construction Techniques
(丁) 低碳建造技術
Trial Use of Innovative Concrete Mix Design and Quality Management System
試用創新混凝土拌合設計和品質管理系統

Conventional Concrete Mix



Innovative Concrete Mix



Marine Mud Factory On-site

The system optimizes particle packing thereby reducing cement content and in turn **reducing carbon dioxide emissions** from the concrete production process.

此系統透過優化混凝土中顆粒的均勻度來降低水泥的份量，從而**減少**在混凝土生產過程中的**二氧化碳排放量**。

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

(d) Green Construction Techniques
(丁) 低碳建造技術
Modular Design and Component Prefabrication Techniques reduce wastage and falseworks
模件式設計及預製組件技術減少損耗物料

Fabric Reinforcement 編網鋼筋



Volumetric Precast Bathroom 立體預製浴室



Semi-precaster Slab 半預製樓板



Precast Façade 預製外牆



Precast Staircase 預製樓梯



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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

(d) Green Construction Techniques
(丁) 低碳建造技術

Electric Vehicle as Contract Cars to support and promote the use of electric vehicles
 使用電動車作為合約車輛以推動電動車的 usage 及發展



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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

(d) Green Construction Techniques
(丁) 低碳建造技術

Trial Use of Bio-Diesel Fuel
 採用生化柴油



Bio-diesel fuel has been adopted for trial use for some of the construction equipment in order to **reduce the emission of green house gases**.
 生化柴油已用於部分地盤機械作試驗，從而**減少溫室氣體排放**。

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

(d) Green Construction Techniques
(丁) 低碳建造技術



Video

* Acknowledgement of China State Construction to provide video clip for editing

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

Carbon Emission Estimation (CEE)
碳排放估算

Kai Tak Site 1A Adopted as Benchmarking Estate
 啟德第一甲區作為基準屋邨

Carbon Emission Estimation: - 327.623 tonne per estate
 碳排放估算: - 327.623 噸屋邨

- 62.96 tonne per flat
 - 62.96 噸單位

Category 類別	Carbon Effect 碳效應	Aspects 範疇
I	Carbon Generation 碳增加量	I Materials Consumed During Construction 施工中的材料使用
		II Building Structure 建築材料
		III Communal Building Services Systems 公共建築服務安裝
		IV Demolition 拆除
II	Carbon Reduction 碳減少量	V Renewable Energy 可再生能源設施
III	Carbon Absorption 碳吸收量	VI Planting 綠化

Aspect I 範疇一: Materials Consumed During Construction 施工中的材料使用



Timber Formwork 木模板

Aspect II 範疇二: Building Structure 建築材料



Concrete & Steel 混凝土及鋼鐵

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B


Carbon Emission Estimation (CEE)
碳排放估算

Aspect III 範疇三: Communal Building Services Systems 公共建築服務安裝



Lighting 照明

Aspect IV 範疇四: Renewable Energy 可再生能源設施



Photovoltaic Panels 光伏發電系統

Aspect V 範疇五: Planting 綠化



Carbon Absorption 碳吸收

Aspect VI 範疇六: Demolition 拆除



Dismantling of Building 建築物拆卸

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PUBLIC RENTAL HOUSING DEVELOPMENTS AT KAI TAK SITES 1A & 1B

Way Forward
未來路向

We will continue to monitor the implementation of these two green estates, and if successful, extend the application of those pilot green features to other new projects in the pipeline. We will also share the experience with stakeholders in the industry.

我們將繼續監察這兩個綠色屋邨的實施成效，若效果理想，我們將這些試驗計劃擴展至其他新的發展項目，並會與業界的持份者分享經驗。

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Thank You
多謝