

**立法會**  
**Legislative Council**

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**Panel on Housing**

**Meeting on 3 December 2012**

**Background brief on "Environment-friendly designs, green measures and energy saving initiatives implemented in public rental housing estates" prepared by the Legislative Council Secretariat**

**Purpose**

This paper sets out the progress of environment-friendly designs, green measures and energy saving initiatives implemented in public rental housing ("PRH") estates, and gives a brief account of the views expressed by Members on the subject.

**Background**

2. To promote a green and healthy living environment for PRH tenants, the Hong Kong Housing Authority ("HA") has adopted environment-friendly measures and introduced new designs for PRH developments, such as the use of central compactor refuse collection systems, common W-trap systems in waste water drainage, twin-tank design in fresh and flush water supply systems, enhanced electrical supply systems for lift services, and green procurement and construction practices. Besides, HA has fully implemented micro-climate studies for all new PRH developments and air ventilation assessments for large scale PRH developments so as to determine the best scheme designs and to optimize land utilization. This has allowed PRH tenants to enjoy natural ventilation and daylight as well as to minimize energy consumption.

Greening

3. In his 2011-2012 Policy Address, the Chief Executive announced that the greening ratio of all new PRH developments would be increased to at least 20%. For larger new public housing projects over two hectares, HA's target is to achieve a greening ratio of 30%, by providing planting at grade and on slope

areas, installing grass-paving systems in areas with less traffic, and providing green podium roofs or green decking to low-rise buildings and vertical greening panels on external walls. As for existing PRH estates, landscape improvement works have been implemented in 18 PRH estates to revamp and improve their green features. Thematic gardens were also established in Choi Wan (I) and Sha Kok Estates.

#### Energy saving

4. Given that lighting and lifts account for 83% of overall electricity consumption in communal areas of a PRH domestic block, HA has adopted a number of energy saving initiatives to cut down the energy consumption for lighting and lifts in existing PRH estates. These include adopting higher energy efficient lamp sources, retrofitting of existing exit signs (with T8 fluorescent tubes) by T5 fluorescent tubes and light emitting diode ("LED") light fitting, fully utilizing daylight, switching-off of excessive light fittings, and replacing older lifts under the Lift Modernization Programme.

5. For new PRH estates, HA has also adopted a diverse range of energy saving initiatives to further reduce electricity consumption and carbon footprint. These include the use of a two-level lighting control system, installation of the photovoltaic panels on the roofs of domestic blocks, application of the wind-solar hybrid lighting system, and piloting the use of LED lighting in public areas, lift lobbies and corridors of some new estates. Besides, HA has also been providing optimized window design at domestic flats, corridors and lobbies at typical floors for better natural lighting and cross ventilation so as to allow energy saving at source.

#### Waste management

6. All PRH estates participate in the Source Separation of Domestic Waste Programme launched by the Environmental Protection Department ("EPD"). Three-coloured separation bins are placed at communal areas of a PRH domestic block to collect recyclable domestic wastes such as waste papers, aluminum cans and plastic bottles for recycling. Other recyclable items like rechargeable batteries, fluorescent lamps, obsolete computers are also collected in PRH estates. Besides, HA jointly launched the Pilot Programme on Source Separation of Glass Bottles ("the Pilot Programme") with EPD in December 2010 at six PRH estates in East Kowloon. The Pilot Programme was extended to another 14 estates in East Kowloon in June 2012. This brings the total number of estates joining the Pilot Programme to 20 and will enable greater public participation in source separation of waste. HA will continue to explore how the Pilot Programme could be further extended and the next target is to cover the remaining eight PRH estates in Kwun Tong District.

7. As regards the management of food waste, the Environment and Conservation Fund allocated about \$270,000 to the Kadoorie Farm and Botanic Garden in 2009 for carrying out a project entitled "Waste to Food – Community Trial Project of Kitchen Waste Recovery with Vermi-composting" ("the Project") from July 2009 to April 2010. The Project was to test vermin-composting of food waste at the community level and to educate the public on related green concepts of food waste reduction and treatment. 50 households in public housing estates, private estates and small village houses were recruited to join the Project and practise domestic vermi-composting.

### Education

8. HA launches a number of activities in collaboration with environmental concern groups to further promote PRH residents' awareness of energy conservation and building energy efficiency as well as to gain their support on the energy saving measures implemented in PRH estates. Such activities include fun fair, road show, and promotional programmes through the Housing Channel broadcast at the G/F lift lobbies of PRH blocks. The "Green Delight in Estates" programme (which helps disseminate green messages to PRH tenants) and the "Action Seedling" scheme (under which seedling plants will be given out to participants who will nurture the plants at home until they are ready for transplanting to planters of new estates) are other educational activities organized by HA to foster a green culture in PRH estates and heighten environmental awareness amongst tenants. Furthermore, the Domestic Waste Disposal Programme and the trial scheme on energy conservation have been carried out to promote segregation of domestic waste at source and energy saving in PRH estates.

### **Deliberations by the Panel on Housing**

9. The progress and effectiveness of environment-friendly designs and green measures implemented in PRH estates were discussed at the Panel meetings on 3 December 2007, 3 November 2008, 2 November 2009, 24 May and 6 December 2010. The Panel also received a briefing on the performance of environmental targets and initiatives of HA in 2009-2010 and the energy saving measures implemented in existing PRH estates on 10 February 2011 and 4 January 2012 respectively.

10. While appreciating the efforts of HA in implementing environment-friendly initiatives in PRH estates, members stressed the need to encourage participation of tenants in taking forward these measures. Some members expressed concern that greening measures would often have to compete with recreational facilities in terms of space. Therefore, there was a need for a better estate design in order to strike a proper balance between greening and the provision of recreational facilities for the benefit of residents.

Other members emphasized that the measures to increase greening in PRH estates should not be cosmetic, but should be implemented in a comprehensive manner covering areas such as rooftops of housing blocks, school premises, shopping centres, leisure facilities and bare slopes covered with cement. However, care should be taken to ensure that the roots of plants would not affect the structural safety of external walls. HA should also pursue the "green office" practices as far as practicable.

*Utilization of energy saving measures and appliances*

11. Panel members opined that very significant energy savings could be achieved as 30% of the population in Hong Kong was living in PRH estates. To this end, HA should work out new quantifiable energy saving measures, such as piloting the use of LED lighting, with specific implementation timetable. It should strike an appropriate balance between costs and environmental performance during implementation. It should also aim at standards higher than the statutory requirements under the Building Energy Codes, given that the implementation of energy saving requirements in PRH estates could substantially reduce the heat island effect. Noting that the original energy-saving devices could only achieve a monthly saving of about 10% in power consumption for the public areas of the housing blocks, members welcomed the replacement of these devices with a more effective new model in some PRH estates. They also supported HA to continue testing the performance of the new model, and take a leading and exemplary role in reducing energy consumption.

12. Some members were concerned about the slow progress of the application of renewable energy in PRH estates, and enquired if HA had conducted feasibility studies on the wider use of renewable energy in these estates. The Administration advised that two large scale, grid-connected photovoltaic systems had been completed in two new estates with details below -

<b>Estate</b>	<b>Panel area</b>	<b>Year of completion</b>	<b>Peak output capacity</b>
Lam Tin Estate, Phase 7 &8	248 m <sup>2</sup>	2009	33 000 Watt
Yau Lai Estate	258 m <sup>2</sup>	2011	27 500 Watt

To further promote green and healthy living and reducing carbon emission in PRH estates, the HA Building Committee decided in May 2011 to install grid-connected photovoltaic systems on the roofs of all new PRH blocks, where they would not be shadowed by nearby structures/buildings, so as to achieve at

least 1.5% of electricity demand of the common areas/ facilities of each block. As regards the initiative to use solar power in new PRH estates, members stressed the need to work out an implementation timetable for rolling out the project by phases within the next ten years. Meanwhile, consideration should be given to replacing the existing incandescent lamps by compact fluorescent lamps and turning off the information panels at the lift lobbies of PRH blocks during the small hours.

#### *Waste management*

13. While agreeing that more waste collection facilities should be provided in PRH estates to facilitate waste collection and separation, members noted with disappointment that the recovery rate had not been significantly increased despite that the number of estates participated in the Source Separation of Domestic Waste Programme had increased by 100% from 2006 to 2009. To encourage the recycling of waste, HA was urged to cooperate with private recyclers to provide incentives to tenants as in the case of some private developments. HA should also take the lead in promoting on-site treatment of food waste in PRH estates by adopting a green design for new PRH blocks to put treatment facilities for food waste and sewage underground for on-site treatment. Some members were concerned that HA would dispense with the existing arrangement of engaging contractors to collect domestic waste for tenants following the provision of refuse chutes.

#### *Enhancement of estate greening and landscaping*

14. While welcoming HA's effort in enhancing greening in PRH estates, members considered it necessary for HA to engage tenants in taking forward greening activities to promote community building and neighbourliness. Given that vertical greening at the Kwai Chung Estate had greatly improved the aesthetics of the estate, some members opined that HA should set a target on the application of vertical greening, and report the progress to the Panel on an annual basis. Efforts should also be made to encourage private developers to adopt similar greening measures in their development projects. On green roofs, members generally supported that these should be provided as far as practicable, but care should be taken to ensure security and safety in planning for green roofs in PRH estates. Tall plants should also be avoided as they might be more vulnerable to damage during typhoon seasons.

*Installation and utilization of water reduction facilities*

15. The Panel supported the use of water reduction facilities. Some members suggested that sea water and dual flushing systems should be applied to all PRH estates where practicable. Consideration should also be given to providing financial incentives to encourage the public to conserve water.

**Relevant papers**

16. A list of relevant papers is in the **Appendix**.

Council Business Division 1  
Legislative Council Secretariat  
29 November 2012

**Environment-friendly designs, green measures and  
energy saving initiatives implemented in public rental housing estates**

**List of relevant papers**

<b>Council/ Committee</b>	<b>Date of meeting</b>	<b>Paper</b>
Panel on Housing	3 December 2007	<p>Information paper on "Environmentally Friendly Designs and Green Measures of Public Rental Housing Estates" provided by the Administration (LC Paper No. CB(1)340/07-08(03))  <a href="http://www.legco.gov.hk/yr07-08/english/panels/hg/papers/hg1203cb1-340-3-e.pdf">http://www.legco.gov.hk/yr07-08/english/panels/hg/papers/hg1203cb1-340-3-e.pdf</a></p> <p>Minutes of meeting (LC Paper No. CB(1)896/07-08)  <a href="http://www.legco.gov.hk/yr07-08/english/panels/hg/minutes/hg071203.pdf">http://www.legco.gov.hk/yr07-08/english/panels/hg/minutes/hg071203.pdf</a></p>
Panel on Housing	3 November 2008	<p>Information paper on "Environment-friendly designs of and green measures implemented in public rental housing estates" provided by the Administration (LC Paper No. CB(1)149/08-09(04))  <a href="http://www.legco.gov.hk/yr08-09/english/panels/hg/papers/hg1103cb1-149-4-e.pdf">http://www.legco.gov.hk/yr08-09/english/panels/hg/papers/hg1103cb1-149-4-e.pdf</a></p> <p>Paper on environment-friendly designs and green measures implemented in public rental housing estates prepared by the Legislative Council Secretariat (Background brief) (LC Paper No. CB(1)149/08-09(05))  <a href="http://www.legco.gov.hk/yr08-09/english/panels/hg/papers/hg1103cb1-149-5-e.pdf">http://www.legco.gov.hk/yr08-09/english/panels/hg/papers/hg1103cb1-149-5-e.pdf</a></p> <p>Minutes of meeting (LC Paper No. CB(1)469/08-09)  <a href="http://www.legco.gov.hk/yr08-09/english/panels/hg/minutes/hg20081103.pdf">http://www.legco.gov.hk/yr08-09/english/panels/hg/minutes/hg20081103.pdf</a></p>

Council/ Committee	Date of meeting	Paper
Panel on Housing	2 November 2009	<p>Information paper on "Environment-friendly designs of and green measures implemented in public rental housing estates" provided by the Administration (LC Paper No. CB(1)193/09-10(03))  <a href="http://www.legco.gov.hk/yr09-10/english/panels/hg/papers/hg12cb1-193-3-e.pdf">http://www.legco.gov.hk/yr09-10/english/panels/hg/papers/hg12cb1-193-3-e.pdf</a></p> <p>Paper on environment-friendly designs and green measures implemented in public rental housing estates prepared by the Legislative Council Secretariat (updated background brief) (LC Paper No. CB(1)193/09-10(04))  <a href="http://www.legco.gov.hk/yr09-10/english/panels/hg/papers/hg1102cb1-193-4-e.pdf">http://www.legco.gov.hk/yr09-10/english/panels/hg/papers/hg1102cb1-193-4-e.pdf</a></p> <p>Minutes of meeting (LC Paper No. CB(1)794/09-10)  <a href="http://www.legco.gov.hk/yr09-10/english/panels/hg/minutes/hg20091102.pdf">http://www.legco.gov.hk/yr09-10/english/panels/hg/minutes/hg20091102.pdf</a></p>
Panel on Housing	24 May 2010	<p>Information paper on "Measures to Increase the Greening Ratio of New Public Rental Housing Estates and the Provision of Recreational Facilities in Existing Estates" provided by the Administration (LC Paper No. CB(1)1909/09-10(03))  <a href="http://www.legco.gov.hk/yr09-10/english/panels/hg/papers/hg0524cb1-1909-3-e.pdf">http://www.legco.gov.hk/yr09-10/english/panels/hg/papers/hg0524cb1-1909-3-e.pdf</a></p> <p>Paper on environment-friendly designs and green measures implemented in public rental housing estates prepared by the Legislative Council Secretariat (updated background brief) (LC Paper No. CB(1)1909/09-10(04))  <a href="http://www.legco.gov.hk/yr09-10/english/panels/hg/papers/hg0524cb1-1909-4-e.pdf">http://www.legco.gov.hk/yr09-10/english/panels/hg/papers/hg0524cb1-1909-4-e.pdf</a></p> <p>Minutes of special meeting (LC Paper No. CB(1)2573/09-10)  <a href="http://www.legco.gov.hk/yr09-10/english/panels/hg/minutes/hg20100524.pdf">http://www.legco.gov.hk/yr09-10/english/panels/hg/minutes/hg20100524.pdf</a></p>



<b>Council/ Committee</b>	<b>Date of meeting</b>	<b>Paper</b>
Panel on Housing	6 December 2010	<p>Information paper on "Environment-friendly designs of and green measures implemented in public rental housing estates" provided by the Administration (LC Paper No. CB(1)606/10-11(05))  <a href="http://www.legco.gov.hk/yr10-11/english/panels/hg/papers/hg1206cb1-606-5-e.pdf">http://www.legco.gov.hk/yr10-11/english/panels/hg/papers/hg1206cb1-606-5-e.pdf</a></p> <p>Paper on environment-friendly designs and green measures implemented in public rental housing estates prepared by the Legislative Council Secretariat (updated background brief) (LC Paper No. CB(1)606/10-11(06))  <a href="http://www.legco.gov.hk/yr10-11/english/panels/hg/papers/hg1206cb1-606-6-e.pdf">http://www.legco.gov.hk/yr10-11/english/panels/hg/papers/hg1206cb1-606-6-e.pdf</a></p> <p>Minutes of meeting (LC Paper No. CB(1)1180/10-11)  <a href="http://www.legco.gov.hk/yr10-11/english/panels/hg/minutes/hg20101206.pdf">http://www.legco.gov.hk/yr10-11/english/panels/hg/minutes/hg20101206.pdf</a></p>
Panel on Housing	10 February 2011	<p>Information paper on "Performance of Environmental Targets and Initiatives in 2010" provided by the Administration (LC Paper No. CB(1)1209/10-11(05))  <a href="http://www.legco.gov.hk/yr10-11/english/panels/hg/papers/hg0210cb1-1209-5-e.pdf">http://www.legco.gov.hk/yr10-11/english/panels/hg/papers/hg0210cb1-1209-5-e.pdf</a></p> <p>Paper on environment-friendly designs and green measures implemented in public rental housing estates prepared by the Legislative Council Secretariat (updated background brief) (LC Paper No. CB(1)1209/10-11(06))  <a href="http://www.legco.gov.hk/yr10-11/english/panels/hg/papers/hg0210cb1-1209-6-e.pdf">http://www.legco.gov.hk/yr10-11/english/panels/hg/papers/hg0210cb1-1209-6-e.pdf</a></p> <p>Minutes of meeting (LC Paper No. CB(1)2023/10-11)  <a href="http://www.legco.gov.hk/yr10-11/english/panels/hg/minutes/hg20110210.pdf">http://www.legco.gov.hk/yr10-11/english/panels/hg/minutes/hg20110210.pdf</a></p>

<b>Council/ Committee</b>	<b>Date of meeting</b>	<b>Paper</b>
Panel on Housing	4 January 2012	<p>Information paper on "Energy saving measures in existing public rental housing estates" provided by the Administration (LC Paper No. CB(1)699/11-12(06)) <a href="http://www.legco.gov.hk/yr11-12/english/panels/hg/papers/hg0104cb1-699-6-e.pdf">http://www.legco.gov.hk/yr11-12/english/panels/hg/papers/hg0104cb1-699-6-e.pdf</a></p> <p>Paper on environment-friendly designs and green measures implemented in public rental housing estates prepared by the Legislative Council Secretariat (updated background brief) (LC Paper No. CB(1)699/11-12(07)) <a href="http://www.legco.gov.hk/yr11-12/english/panels/hg/papers/hg0104cb1-699-7-e.pdf">http://www.legco.gov.hk/yr11-12/english/panels/hg/papers/hg0104cb1-699-7-e.pdf</a></p> <p>Minutes of meeting (LC Paper No. CB(1)1148/11-12) <a href="http://www.legco.gov.hk/yr11-12/english/panels/hg/minutes/hg20120104.pdf">http://www.legco.gov.hk/yr11-12/english/panels/hg/minutes/hg20120104.pdf</a></p>