

**立法會**  
**Legislative Council**

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**Panel on Housing**

**Meeting on 4 January 2012**

**Updated background brief on environment-friendly designs and  
green measures implemented in public rental housing estates  
prepared by the Legislative Council Secretariat  
(Position as at 23 December 2011)**

**Purpose**

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

**Background**

2. In 2004, the Housing Authority (HA) has adopted a comprehensive strategy on sustainable development to enhance environmental protection and to provide a healthy and comfortable living environment for tenants. Since then, the following environment-friendly elements have been incorporated in the planning, design and construction of PRH estates -

- (a) Micro-climate studies – to ensure that the built environment so designed will enable residents to enjoy natural day light and ventilation;
- (b) Air Ventilation Assessment – to assess whether the developments would pose restriction to air flow;
- (c) Common W-trap system in drainage facilities – to divert waste water from wash basins and shower areas to floor traps, which prevents the floor traps from drying up and helps seal off exhaust gas and bacteria from other storeys, thereby preventing the spread of germs;

- (d) Domestic waste management – two types of compactor system have been adopted to reduce refuse volume, and a volume control device has been installed to prevent refuse spillage and odour leakage during the refuse handling process;
- (e) Refuse storage and collection design to promote sorting at source – in addition to the Refuse Storage and Material Recovery Rooms on typical floors to accommodate the three recycle refuse bins, an area of not less than 10 square metres would be set aside as Material Recovery Point for sorting and storage of recyclables;
- (f) Installation of de-odourizers at refuse collection points – new de-odourizers would be installed at the covered refuse collection points in some of the estates to help contain the odours at time of refuse collection;
- (g) Energy saving designs – to ensure that all new housing projects will meet the energy efficiency requirements on lighting, electricity, air conditioning, lift and escalator installations;
- (h) Use of renewable energy – selected estates would be installed with solar photovoltaic system and solar-wind combined power lighting to evaluate the effectiveness and long-term performance of such installations;
- (i) Green construction techniques and waste management – modular design and component prefabrication techniques would be adopted as far as practicable to conserve resources and reduce construction waste;
- (j) "Life Cycle Assessment" and "Life Cycle Costing" – to enable HA to develop a technically and economically viable procurement strategy for more environment-friendly materials;
- (k) More environment-friendly façade – the new design features, including extended overhang, reduced window glazing and more use of tinted glass, will help conserve energy; and
- (l) Increased greening in PRH estates – the scope of greening in all housing developments has been increased. This includes a pilot scheme for using prefabricated "vertical green panels" for growing plants on roofs or facades of building.

3. In addition, the Housing Department (HD) is also actively pursuing the following greening and environmental protection initiatives in PRH estates -

- (a) "Green Delights in Estates" – the programme would be rolled out in phases to cover all PRH estates with a view to promoting environmental awareness among PRH tenants;
- (b) Action Seedling – seedling plants would be given out to participants who are willing to nurture the plants at home until they are ready for transplanting to planters of new estates;
- (c) Domestic Waste Disposal – floor-based facilities are provided to facilitate tenants to dump their recyclable waste for separation and recovery;
- (d) Energy conservation – the trial scheme on energy conservation has been extended to ten other estates to further test and assess its effectiveness; and
- (e) Housing Channel – the Housing Channel broadcast at the G/F lift lobbies of PRH blocks has been used to disseminate green messages to encourage tenants to lead a green life.

## **Progress**

4. In his 2009-2010 Policy Address, the Chief Executive announced that the greening ratio of all new PRH estates will be increased to at least 20%. Green roofs and vertical greening will be respectively provided in low-rise buildings and some pilot projects wherever feasible. The Council for Sustainable Development has further proposed a greening ratio of 20% to 30% for new projects with sites larger than 1 000 square metres.

5. When planning and designing new PRH estates, HA has adopted the following four greening measures taking into consideration site constraints –

- (a) provide planting at grade and slope areas as far as possible;
- (b) arrange green roof or green decking to low-rise structures, covered walkways, car-parks and vehicular access where possible;
- (c) install a grass-paving system in open car-parks, loading and unloading bays, emergency vehicular access routes and areas with less traffic; and
- (d) implement pilot vertical greening while exploring the inclusion of vertical greening in the greening ratio.

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

6. 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. At the meeting on 10 February 2011, the Panel received a briefing on the performance of environmental targets and initiatives of HA in 2009-2010.

7. 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 environment-friendly materials*

8. Some members expressed concern that the adoption of component prefabrication techniques as a means to promote green construction practices might adversely affect the employment opportunities of local construction workers. This also ran contrary to the Administration's pledge to create more jobs in Hong Kong. The use of precast concrete components was more acceptable if these were manufactured in Hong Kong. To this end, consideration should be given for the Administration to set aside some rural areas for the manufacture of precast concrete components with a view to retaining the relevant job opportunities in Hong Kong. These members pointed out that under the green procurement policy, more emphasis should be put on using green construction techniques to help generate local demand. HA should also endeavour to use more recycled materials in new PRH projects, with a view to promoting the development of local recycling industry as well. There was also a need to improve the designs of PRH estates to avoid a "wall effect".

9. The Panel stressed the need for HA to reduce, recycle and reuse the construction and demolition materials arising from redevelopment PRH projects. Given that it had been HA's practice to require tenants to restore their PRH units to their original form upon removal, some members suggested that new tenants

should be consulted as they might find some of the fittings useful. A checklist on the fittings that could be retained and reused should be provided as far as possible.

#### *Utilization of energy saving measures and appliances*

10. Panel members opined that very significant energy savings could be achieved as 30% of the population in Hong Kong were living in PRH estates. To this end, HA should work out quantifiable measures with specific implementation timetable. 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 Ho Man Tin Estate in November 2008 and five domestic blocks in Kwai Chung Estate as a result of the trial scheme on lighting device energy conservation. They also supported that HA should continue testing the performance of the new model.

11. Some members were concerned about the slow progress of 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. 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.

#### *Waste management*

12. 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*

13. 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 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 these might be more vulnerable to damage during typhoon seasons.

*Installation and utilization of water reduction facilities*

14. 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.

**Latest development**

15. The Administration has proposed to brief the Panel on energy saving measures implemented in existing PRH estates and their effectiveness in reducing energy consumption at the Panel meeting on 4 January 2012.

**Relevant papers**

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

**Environment-friendly designs and green measures  
implemented in public rental housing estates**

**List of relevant papers**

Council/ Committee	Date of meeting	Paper
Housing Panel	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>
Housing Panel	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>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>
Housing Panel	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/hg1203cb1-193-3-e.pdf">http://www.legco.gov.hk/yr09-10/english/panels/hg/papers/hg1203cb1-193-3-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>
Housing Panel	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</p>

Council/ Committee	Date of meeting	Paper
		<p>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>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>
Housing Panel	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>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>
Housing Panel	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>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>