

## **Legislative Council Panel on Housing**

### **Design for Healthy Living and Promotion of Environmental Sustainability in Public Housing Estates**

#### **Purpose**

This paper briefs Members on the initiatives being pursued by the Housing Authority in improving residents' living environment and promoting environmental sustainability in public housing estates.

#### **Background**

2. The approach the Housing Authority has all along adopted is to build the maximum number of public rental flats within permissible plot ratio to meet the needs of the community. The outbreak of Severe Acute Respiratory Syndrome (SARS), however, has raised concerns on the need to improve the overall living environment of public housing estates in terms of space, ventilation, and drainage. The Housing Authority has recently embarked on a number of initiatives under the broad direction of building for healthy living and environmental sustainability. These initiatives fall within three categories, namely, the design of new public housing estates, construction for environmental sustainability and enhanced management of existing estates.

#### **Design of New Public Housing Estates**

3. During the design phase, we aim to optimise development intensity instead of maximising it, to better disposition the building blocks for best micro-climate environmental benefits and to improve the drainage systems of the building blocks.

### ***Optimisation of Development Intensity and Plot Ratio***

4. We are collaborating with the Planning Department to examine and adjust the development potential with a view to lowering the development intensity of public housing sites under planning and design.

5. In a similar vein, instead of maximising development intensity, we will revisit and scrutinise projects in committed housing sites to explore the feasibility of optimising development potential taking into account of neighbouring community facilities. This will avoid duplication in the provision of community facilities such as car-parks and encourage sharing of community facilities with the same neighbourhood.

### ***Dispositioning of Building Blocks***

6. Before the outbreak of SARS in March 2003, we have already pioneered micro-climate studies for some of our building projects during their design and planning stages. These studies help us to achieve optimum disposition of building blocks and associated open space so that individual flats can capture the optimum level of natural daylight and ventilation which is important in ensuring healthy living conditions of residents. We have adopted sophisticated simulation methods to model how factors such as wind environment, natural ventilation, solar heat gain and thermal comfort, daylight penetration, road traffic noise and energy use will affect the overall environmental performance of the buildings and the developments. The simulation data will facilitate designers to decide the orientation of the building blocks in a particular site.

### ***Improved Drainage and Re-entrant Design***

7. In the wake of the problem arising from dried-up floor traps discovered during the SARS outbreak, we have completed a technical review and a site trial to fill U-traps under floor drains with water from shower area and washbasin. This new common trap design is being considered by the Buildings Department and will be introduced to public housing estates upon technical endorsement. In addition, a working group has been formed by the Buildings Department and with representatives from professional institutes and the industry to develop measures to improve the environmental hygiene of buildings, including access facilities for regular inspection and maintenance of external drainage pipes and re-entrants

design. The Housing Department also takes part in the working group and will stand ready to bring in systems that are suitable for implementation in public housing estates.

### **Construction for Environmental Sustainability**

8. In the construction phase, we favour the use of advance building technology such as precasting and prefabrication to minimise pollution and construction waste. We have also adopted measures to save energy and minimise pollution from our construction sites.

#### ***Precasting and Prefabrication***

9. To achieve better quality of work and greater construction efficiency, we continue to adopt mechanised steel formwork, precast facades, staircases and slabs, and factory-made prefabricated building components including panel dry walls and doorsets. We have also reduced timber consumption and greatly reduced construction waste on sites. These measures help to enhance efficiency and achieve a cleaner working environment.

#### ***Energy Efficiency***

10. In the past, we sought to reduce our energy consumption and enhance energy management by adopting Energy Codes in our building designs and widely using energy efficiency equipment such as electronic ballasts and high efficacy lamps in lighting installations. Recently, we have undertaken a holistic review of energy performance in selected shopping centres and are implementing a number of improvement measures, such as optimising indoor air conditions, readjusting the control and operating time of air-conditioning systems, and strengthening energy management, etc. To strive for further energy saving, we have commenced planning for another research study on energy conservation for lifts and escalators installations.

### ***Environmental Plans for Construction Sites***

11. To improve the environmental performance of the construction process, we have since August 2002 required submission of an Environmental Management Plan for all building, piling and demolition projects through contract specifications. This requirement has been extended to civil engineering contracts from September 2002 onwards. In addition, we have recently further expanded our “Pay for Safety Scheme” to an integrated “Pay for Safety, Environment and Hygiene Scheme” for all contracts tendered out from October 2003 onwards. Under this Scheme, contractors will be rewarded for their efforts in environmental protection such as compilation of environmental management plan, organisation of environmental training for workers, noise control, water pollution control, dust control and construction waste control.

### **Management of Existing Public Housing Estates**

12. In managing existing estates, we focus on four main areas in improving the estate environment and reducing pollution, namely, use of dehumidification and deodourisation systems to reduce unpleasant smell, adoption of excavation-free method in maintaining underground pipelines, waste management and recycling, and greening of public housing estates.

#### ***Dehumidification and Deodourisation Systems***

13. We have tested various dehumidification and deodourisation systems in Housing Authority’s wet markets and refuse collection points to enhance the air quality inside the premises. In addition to the provision of air-conditioning facilities in wet markets, we have launched a trial scheme of using gas desiccant dehumidification system to maintain an appropriate humidity level, thus curtailing bacteria growth. We have also installed ultraviolet radiation lightings in some wet markets and installed biotechnology equipment at the refuse collection point of shopping centres for deodourisation and disinfection purposes. These installations will effectively remove the harmful and smelly pollutants in the air. We are considering further expansion of these schemes in stages.

### ***Excavation-free Rehabilitation of Pipelines***

14. We have started implementing a “no-dig” polymer liner relining method to restore our aging underground pipes. Compared with the traditional “road-digging” process, this excavation-free method will minimise disturbance to the residents and disruption to traffic and pedestrian flows. This method has also proved to be very cost effective and time saving for pipes laid deep underground, compacted with different utilities or in congested site conditions.

### ***Waste Management and Recycling***

15. We have been implementing waste management schemes to reduce domestic waste and recycle items such as used clothes, aluminum cans, paper and plastic bottles collected in our housing estates. We will continue to disseminate green messages to tenants through estate newsletters, publicity and educational activities. We are providing recycling bins in all estates at convenient locations to enable tenants to develop environmentally friendly rubbish disposal habits. Through raising tenants’ awareness and promoting their participation in waste management, we hope to instill a culture of shared responsibilities for environmental protection among our tenants.

### ***Greening***

16. In line with our greening pledge, we are actively planting and preserving trees and vegetation in about 150 housing estates. We have been taking advantage of every new greening opportunity by providing landscaping for new housing projects. We are also committed to improving the landscaping work for over 40 existing housing estates every year.

17. In 2002/03, we provided some 1.2 million plants in 20 newly completed estates and some 40 existing estates. This year, we have so far planted some 342 000 plants in existing and new estates and completed greening work for 16 slopes.

18. To enhance community involvement in greening, we aim to organise tree planting days in three estates a year to involve residents in greening their estates. Up to end November 2003, we have organised tree planting activities in five estates. If circumstances permit, we will develop small-scale local theme gardens, which have been set up in six estates so far. This year, we have also organised the “Top Ten Favourite Trees in Public Housing Estates” competition. Over 2 500 tenants took part in the nomination and voting. Professional bodies and in-house landscape professionals served as adjudicators. Through these educational activities, tenants will have a better appreciation of the environmental enhancement brought about by estate greening.

### **Way Forward**

19. We have made some headway in driving healthy living and environmental sustainability in the design, construction and management of public housing estates. We will continue to take a proactive and innovative approach in providing a healthy and sustainable living environment for tenants in public housing estates and contributing to the overall enhancement of the living environment for the community.

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