LegCo Panel on Planning, Lands and Works

Summary of views of the Hong Kong Institution of Engineers on developments creating the wall effect

General

1. The Hong Kong Institution of Engineers (HKIE) refers to the wall effect, which has been broadly identified as the impact of new developments in terms of visual and ventilation, particularly on the development which is linear in shape or with the tower blocks arranged in a linear orientation. We are pleased to provide our views as follows, with emphasis on the air ventilation aspect.

2. The Institution notices that the public has raised concern on the negative impact of wall effect to the society in the recent years. Aesthetically speaking, we are of the view that walls composed of a series of close-by tall buildings of same height in general make a very dull city skyline and a canyon-like shoreline which is not visually pleasing. In terms of health issues, we opine that walls block breezes to the inland, making inhabitants uncomfortable in humid and hot weather and obstructing pollutants be blown away. This will inevitably create health problems to inhabitants in the affected areas. With this in mind, we believe that measures must be taken up to counter the negative effect of walls holistically.

Views on the current ventilation assessment guidelines

3. After the outbreak of SARS in 2003, Government undertook in the "Team Clean" Report to examine the practicality of stipulating air ventilation assessment (AVA) for all major government's development or re-development proposals. In June 2005, the Committee on Planning and Land Development agreed to apply AVA to all major government projects. The Hong Kong Planning Standard and Guidelines Chapter 11 Urban Design Guidelines (July 2006 Edition) (HKPSG Chapter 11) provides advisory guidelines in both the major urban design issues and air ventilation with a view to shape a better physical environment in aesthetic and functional terms. The Technical Circular No. 1/06 – Air Ventilation Assessments issued by Housing, Planning and Lands Bureau in July 2006 (TC No.1) also provides guidelines for carrying out AVA study to all major government projects, which can also serve as a good reference for private development.

4. According to the TC No. 1, Wind Velocity Ratio (VR_W) is adopted as an indicator to measure the relative impact of the new developments to its surrounding areas. It is a ratio of wind velocity at the pedestrian level (2m above ground) to the wind velocity at the top of the wind boundary layer not affected by ground roughness, building and local site features (typically assumed to be 300m above suburban sites and about 600m above cities). The higher the VR_W, the lesser the impact of the development on wind availability. However, at the present moment, commonly

acceptable and objective benchmark standard of VR_W in different geographic locations have not been established and enforced. The Institution is of the view that with the objective benchmark standard in place, it can serve as a quantitative control on property development's impact to air ventilation.

5. We understand that a feasibility study on "Urban Climate Map and Standards for Wind Environment" (the study) has been commissioned by the Planning Department in July 2006 and is expected to be completed by mid 2009. When finished, the study will provide some objective guides on the acceptance criteria of VR_W. As the matter would have great impact on Hong Kong's land development, we suggest that consent from the community and industry should be obtained before the acceptance criteria are finalised. We suggest that relevant professional institutions such as the HKIE, Hong Kong Institute of Architects (HKIA) and Hong Kong Institute of Planners (HKIP) be invited to participate in the relevant part of the study.

Economic and social considerations

6. We understand that given the scarcity of developable land in Hong Kong, land resource is a very valuable natural resource for sustainable development. Besides economical values, the high-density developments in urban areas provide a portion of residential and commercial spaces for the Hong Kong's huge population and intensive commercial activities. We also understand that income from land sale is one of the major Government incomes. To impose too stringent benchmark standard on VR_W /AVA or visual impact requirements to new property projects may result in reduction to the prevailing level of permissible plot ratio. In this light, Government should strike a balance between social and economic considerations.

Proposed way forward for new property projects

New property projects with planning approval or legal status

7. We agree that for the property development with foundation works committed, flexibility for changing the tower blocks disposition and podium configuration would be very limited. The property development with approved master layout plan or land grant executed, their development scheme and/or development intensity have gone through necessary approval process. Before the benchmark standard of VR_W is in place, all legal status, executed land grants and approved Master Layout Plans (MLP) of the property developments should be honoured and given due respect. We are of the view that these projects should be allowed to proceed according to their approved MLP, land grant and planned schedule to avoid imbalance in residential flat supply and further shrinkage of the construction industry in Hong Kong. However, the project proponents of these projects under this category should still try every possible measure in detailed design stage to improve air ventilation or wind permeability at street level of the surrounding as much as they could.

New property projects without any planning approval and legal status

8. We suggest that for new development without approved master layout plan

and executed land grant, the design of development can make reference to HKPSG Chapter 11. With the benchmark standard of VR_W in place in the future, the new development projects' impact on air ventilation can be alleviated with an objective and quantitative benchmark standard.

Solutions to counter the "wall effect" and to enhance air ventilation

9. We wish to stress that high-rise buildings should not be equated to "wall effect", and that reducing development intensity may be one of but not the only solution to "wall effect". In some cases, high-rise building may even serve as wind catcher and improve air ventilation of its surrounding areas. In general, we would like to suggest the following designs to address the "wall effect" of a development:

(a) Keeping reasonable and practical separation distance between the building blocks to increase wind permeability to street level;
(b) Adding in more sky gardens at reasonable heights to increase the permeability of the building blocks; sky gardens at low level zone generally help improve wind permeability at street level but those at mid or higher zones can generally improve wind permeability of space at leeway of the building blocks;
(c) Varying building heights to help optimise the wind capturing potentials of the development itself;
(d) Creating large breezeways/voids above or within podium structures facing the wind direction; and
(e) Creating more open space and visual corridors.

Government's role in enhancing air ventilation

10. Considering that an attractive shoreline and skyline are trademarks for Hong Kong as the Pearl of the Orient and Asia's World City and that the current AVA is only applicable to government's projects, we are of the view that measures must be taken up so as to uphold the quality of buildings and urban living space in Hong Kong. In particular, we encourage Government to consider implementing planning guidelines on the visual impact of buildings with a view to providing Town Planning Board with some simple and effective guidelines in determining the visual impact of developments, particularly for the high rises built along the water front.

11. Besides buildings which caused wall effect to the environment, we observed that unauthorised advertising boards over main roads/streets are also the massive obstructions to breezeways. We therefore urge government to take immediate action to regulate and control these massive obstacles with a view to enhancing inland air ventilation.

HKIE's observations and recommendations

12. The Institution would also like to provide below our observations and recommendations in respect of technical issue on wall effect for the consideration of the Panel:

(i) Currently many claims of wall effect may be motivated by the concern of blocking of private views. We think criticism should be based on result of

scientific analysis and this is fairer. We welcome the introduction of the TC No. 1 on AVA. It sets up the scientific basis on what contributes wall effect, how to quantify severity or otherwise of wall effect;

(ii) The AVA of TC No. 1 adopted a cautious approach, creating an Air Ventilation Data Registry, using real life Government projects as test cases etc. However the TC currently does not have project acceptance criteria and the projects which require AVA are too restrictive: e.g. water front sites with lot frontage exceeding 100 metres in length, development proposals with total gross floor area exceeding 100,000 square metres would render most projects not subjected to AVA. These areas of TC need to be revisited;

(iii) The AVA Registry will take many years to build up and acceptance criteria will take years to establish. Meanwhile, wall-like building will continue to be built and conscientious developers have no direction to follow. We suggest some simple interim AVA criteria will be drawn up by the Planning Department with guidelines which are simple and practicable. Project proponents for fresh development project can use these simple guidelines for Town Planning Ordinance (TPO) section 12 and 16 applications. If a project proponent finds out the simple interim guidelines impose difficulty to comply the conditions with his site, the guidelines can clearly state a scientific performance based analysis with appropriate mitigation measures would be an acceptable solution. With the spirit of respecting the exiting planning approval or land grant of development projects, the guidelines should only apply to fresh development projects without planning approval or land grant. These guidelines should not apply to amendment to the existing planning approval;

(iv) Planning Department's ongoing plan-by-plan amendment for height control should be implemented more quickly in view of public concern on wall effect. Priority areas to amend plans should be waterfront of North Point, Island West and West Kowloon. Planning Department should establish as soon as possible or have a view of the VR to be achieved at waterfront areas. This will provide a fair and clean direction to disposal of land, assessment of premium and improve Lands Department efficiency in responding to lease modifications;

(v) The building height control review of Planning Department should not merely consider visual impact. Any restriction on building height, for the same plot ratio, will widen the building bulk and thus create wall effect. Therefore in the review, the new requirements should be thoroughly considered to avoid saving the ridge line but sacrificing the district air ventilation;

(vi) Government should conduct a wind tunnel model or computational fluid dynamics analysis of major concern areas e.g. West Kowloon, North Point etc. to provide preliminary data of permissible building height and width in various near water front. The data will be helpful to Planning Department in its building height control review, and help the private sector by being able to quickly respond to TPO section 16 and Comprehensive Development Area (CDA) – MLP applications, and to help to draft the Interim AVA guidelines; and

(vii) In the face of public concern on wall effect, Government must act to respond. However, private property right protected by Article 105 of the Basic Law must be respected. Those sites with land grant executed, lease modification made and land premium paid should not be subject to building bulk restriction which may reduce the gross floor area of the development.