

SEMINAR SERIES ON

“NEW HORIZON IN GREENING

– SKYRISE GREENERY”



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綠化及園境辦事處

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Seminar Series on Skyrise Greenery

Series No.1

Overview and Perspectives on Skyrise Greenery

9 November 2010

Series No. 2

Experience Sharing in Design & Construction, and Recent Researches

2 December 2010

Series No. 3

Experience Sharing in New and Retrofitting Design Projects

20 December 2010



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Topics & Speakers - 20 December 2010

“Greening on Green Architecture from Designer’s Perspective”

- Ms Lilian Yu

Architectural Branch, Architectural Services Department

“Rooftop Greening Projects”

- Mr. Wu Ka-sing

Property Services Branch, Architectural Services Department

“Let There Be Light”

- Mr. Ian Robinson

Oriental Landscaping Ltd.



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Topics & Speakers

“Promoting Greening with the Environment and Conservation Fund”

- Ms Eunice Chan

ECF Secretariat, Environmental Protection Department

“Experience Sharing of Environment and Conservation Fund School Green Roof – A Case Study”

- Mr. Chan Kim Fai

Ho Fung College

“Findings of Green Roof Scheme at School Buildings”

- Mr. Humphrey Wong

Hong Kong Architecture Centre



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Development of Skyrise Greening in Hong Kong



Need to improve the **QUALITY** of urban environment



How far have we achieved in Hong Kong?



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Situation in Hong Kong

Problems with urban fabric:

- abundance of hard surface - heat island effect
- limited greening
- keen competition of space
- lack of holistic design
- utilitarian approach



Issues in Hong Kong

Problems with urban fabric

= Potential areas for improvement?

- explore greening opportunities beyond ground levels
- make good use of existing spaces
- Integrated and holistic approach



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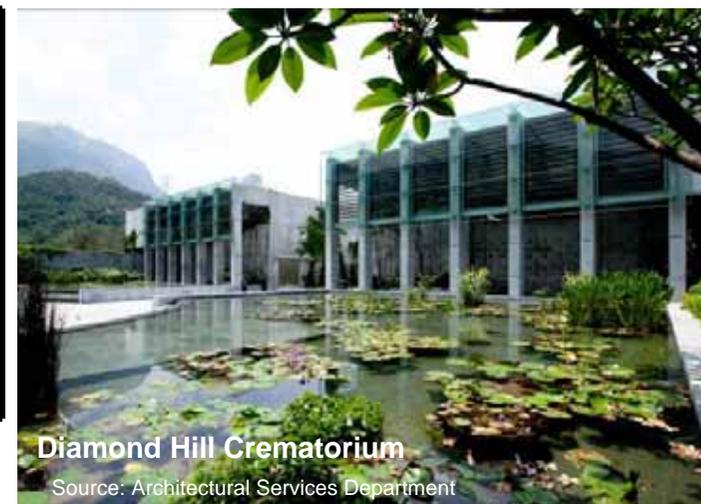
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Development of Skyrise Greening in Hong Kong

Skyrise Greening Projects - Government's projects

Roof Greening

Year	Cumulative total up to Oct 2010	In progress	under planning
New Project and Retro-fit Project no.	159	62	32



Vertical Greening

Year	Cumulative total up to Oct 2010	In progress/ under planning
Project no.	45	28



Sources: Progress Report Of Works and Maintenance Committee On Greening, Steering Committee on Greening



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Development of Skyrise Greening in Hong Kong

Building/ open space projects



Source: Architectural Services Department



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Development of Skyrise Greening in Hong Kong

Infrastructure



IFC footbridge

Source: TK Ng



Green Roof at Sha Tin STW Air Blower House

Source: Drainage Services Department



Vertical Greening at Tai Hang Tung Flood Pumping Station

Source: Drainage Services Department



Vertical Greening at Sha Tin Sewage Treatment Works

Source: Drainage Services Department



Development of Skyrise Greening in Hong Kong

Residential Development



Development of Skyrise Greening in Hong Kong

Schools/ Training Institutes



Cumberland Presbyterian Church Yao Dao Primary School

Source: SP Ng



Hong Kong Design Institute

Source: TKK Ng



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What is Skyrise Greening?

- Closely associated with human habitants/ **integration of greening and buildings**
- An old idea – hanging gardens of Babylon (around 500 BC)
- Greening at the buildings or other structures **beyond the ground level, including roof greening, vertical greening, sky gardens, terrace planting, etc.**
- Roof greening and vertical greening



What is Skyrise Greening?

Roof greening

- **Vegetated space** that is structurally integrated on top of a man made structure
- **non at-grade planting**, with main focus on the **horizontal** dimension



What is Skyrise Greening?

Green 'roof' not confined to top of building; also includes:

- **Podium Garden**
- **Sky Garden**
- **Green Terraces**

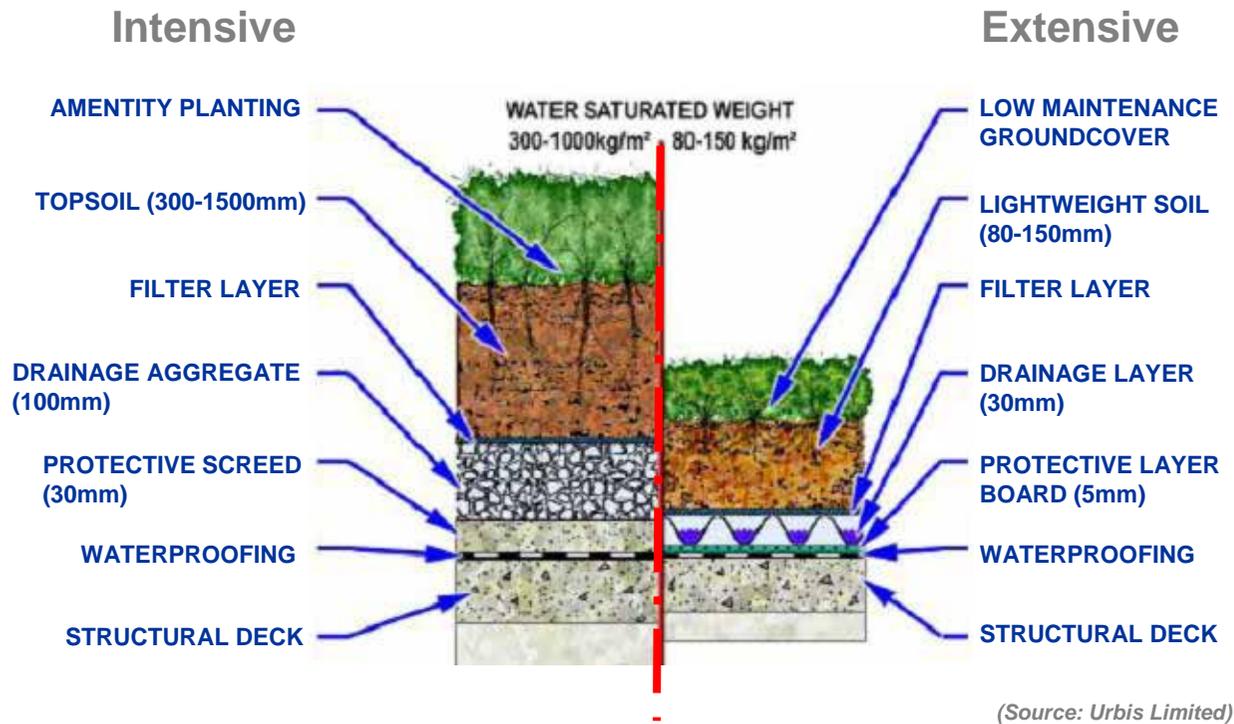


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What is Skyrise Greening?

Intensive Green Roof vs Extensive Green Roof



What is Skyrise Greening?

Vertical Greening

- Formed by either planting **at-grade** or planting on **elevated planters**, aiming at creating greenery mainly on **vertical surface** of associated structures



Lantau Link Visitor Centre, Tsing Ma

Source: SP Ng



Commercial building in Shenzhen

Source: TK Ng



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Application of Vertical Greening

1. Self clinging climbers on a vertical surface

– adequate soil at the base



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Application of Vertical Greening

- 2. Climbers requiring climbing device e.g. cable, frame



Source: TK Ng



Source: TK Ng



Application of Vertical Greening

3. Screening by planting in front of vertical surface e.g. shrubs, bamboos



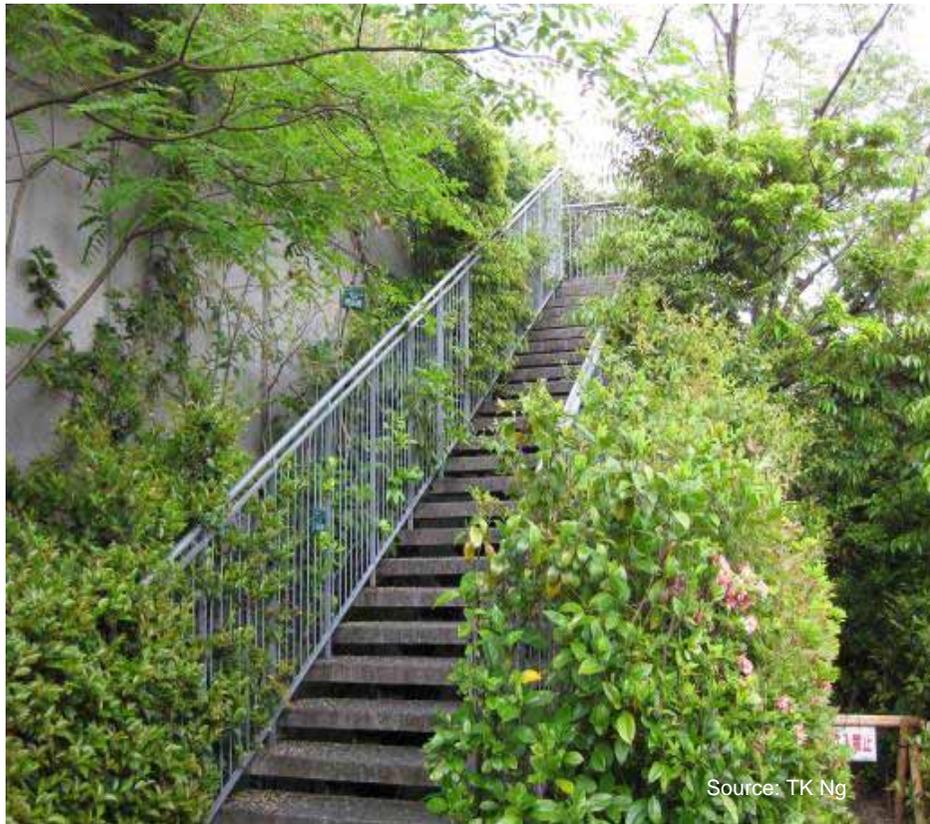
Application of Vertical Greening

4. **Stacking up** of planters vertically with plants growing upward and/or weeping downward



Application of Vertical Greening

5. Combination of different methods



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Application of Vertical Greening

6. **Custom-design or proprietary system** with soil or other substrate layers aligned vertically

- more costly in installation and maintenance



Source: TK Ng



Source: TK Ng



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Good Design Principles

- *'Right design for the right place'*
- *Simple, sustainable and cost effective design*
- *integrate building/structure and greening*
- *greening consideration at planning stage*
- *integrate with adjacent open space*



Good design principles

Key issue -

- to integrate skysrise greenery in **quality**

building design

- as a **part of a quality and holistic**

urban design / cityscape

- a **means** but not an end itself



Source: TK Ng

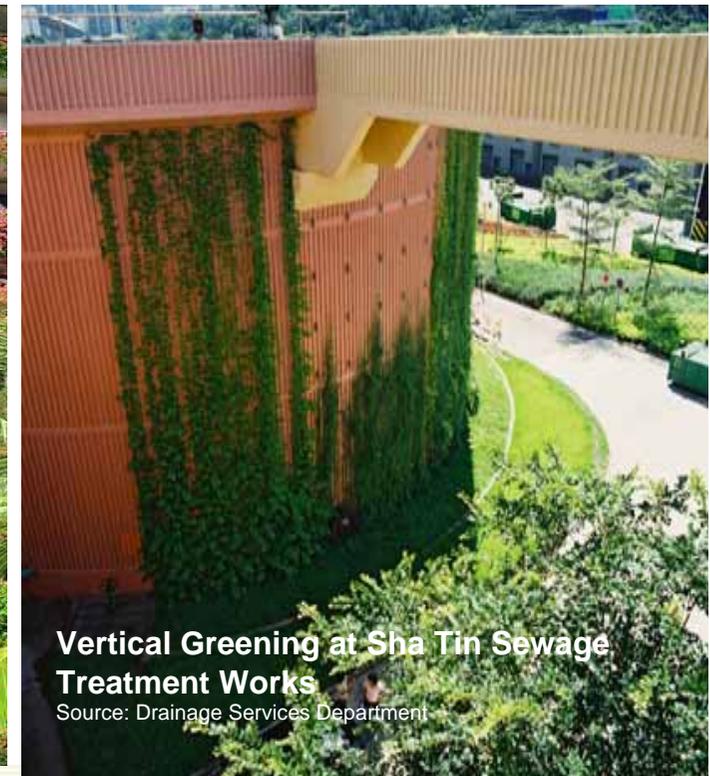
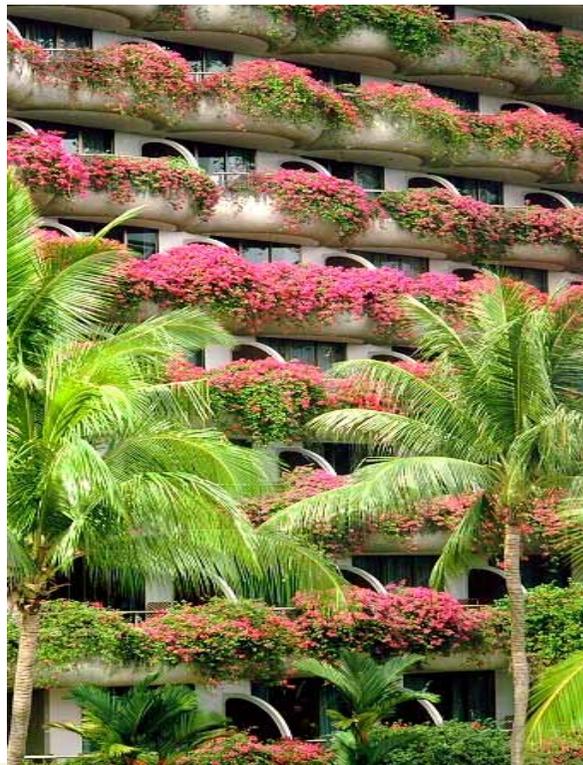


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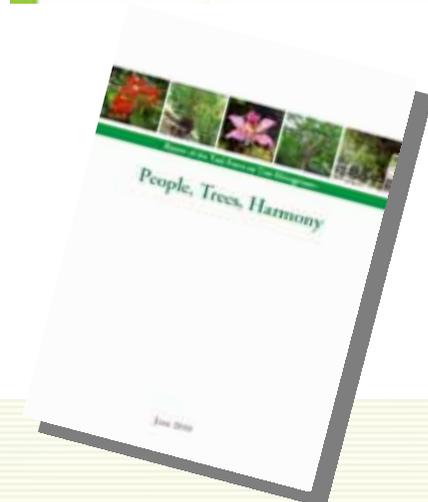
Opportunities for Innovative Design

- **Skyrise greenery** - provide additional greenery / design tools in congested urban environment; but not limited to planting by itself
- should be considered in the **planning stage - adequate soil volume and space, sustainable design**
- **linkage with the surrounding open space**



Impetus for Change – ‘Green Building Movement’

- **Council for Sustainable Development (SDC)**
“*Building Design to Foster a Quality and Sustainable Built Environment*”
- **Hong Kong Green Building Council (HKGBC)**
 - **Building Environment Assessment Method**
BEAM Society and BEAM Plus (Ver 1.1)
 - **Government Buildings – BEAM Plus – April 2009**
- Holistic approach to greening, landscape and tree management advocated in “*Report of Task Force on Tree Management*” and establishment of **Greening, Landscape and Tree Management Section** in DEVB
- **New policy initiatives in 2010-11**



Impetus for Change – ‘Green Building Movement’

Building Department : Consultancy Study on Building Design that Supports Sustainable Urban Living Space in HK

- **Site Coverage of Greenery and other recommendations**

Proposed **greenery coverage** in the IR document

>1,000 m² a minimum of **20% site coverage of greenery**

>2 ha a minimum of **30% site coverage of greenery**



Building Design to Foster a Quality and Sustainable Built Environment

- A public engagement process launched by the **Council for Sustainable Development** (SDC) in collaboration with the **Development Bureau** (DEVB) and **Environment Bureau** in December 2008
- Strong **public aspirations** for a **quality** and **sustainable** built environment



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Holistic Approach & Establishment of GLTMS under DEVB

- The Greening, Landscape and Tree Management (GLTM) Section was established in DEVB in March 2010





Aim...

- **To achieve a quality and greener environment in a sustainable manner**
- **The knowledge and expertise of skyrise greening**
- **New initiatives on sustainable landscape and building design**





- **To achieve a quality and greener environment**
- **Participation and collaboration of all relevant parties is needed**

DEVB's Greening website
<http://www.devb.gov.hk/greening>

Thank you

Hong Kong Wetland Park

Source: Architectural Services Department



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