Showcase of Green Campus Development in Hong Kong

A Case Review of Hang Seng Management College’s Master Campus Expansion Plan
The **Hang Seng Management College (HSMC)** is a non-profit, self-financed university-level institution in Hong Kong.

Acquired six pieces of land (Site A to F) adjoining the current parent building.

Offers a wide range of undergraduate and taught postgraduate degree programmes.

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**About HSMC**

Not only a physical space for activities but also a **learning campus**

Communicate a sustainable future to young **generations**
Master Campus Expansion Plan
Master Campus Expansion Plan

Block A: S.H. Ho Academic Building
Block B: Sports and Amenities Centre
Site C: HSMC Plaza
Block D: Lee Quo Wei Academic Building
Site F: HSMC Jockey Club Residential Colleges
Block M: Academic and Administration Building
Block N: Academic and Administration Building
BEAM Plus

• A single performance label that sums up the overall qualities of a building
• It embraces a range of good practices in whole building life cycle
• It is aligned with local regulations, standards and codes of practice
Master Campus Expansion Plan

Block A - S H Ho Academic Building (Completed Sep 2012)

• 24 Classrooms & 2 Computer Rooms
• Central Library, Conference Hall, Language and Multi-media Laboratories, etc.
Master Campus Expansion Plan

Block B - Sports and Amenities Centre (Completed Oct 2013)

- 6-lane Indoor Swimming Pool, Indoor Sport Hall, Gymnasium
- Canteen
Master Campus Expansion Plan

Block D - Lee Quo Wei Academic Building (Completed Sep 2013)

• 26 Classrooms & 2 Computer Room, Training Centre & Studio
• Offices for Schools/Department
Master Campus Expansion Plan

Site F - HSMC Jockey Club Residential Colleges (Completed Sep 2015)

• 3 blocks of residence halls
• About 400 student quarters accommodating 1,200 students
Green Campus Features
Site Planning and Design

- **Proactive approach** to achieve greater integration of site planning and design issues.
- To comply 100% of items of the **Urban Design Guidelines** in HK Planning Standard and Guidelines (HKPSG).

### Visual Corridor to ridgeline of Tate's Cairn and greenery

### Stepping Down Design

- **Site D**: Lower building height
- **Site B**: Taller building height
- **Site A**: View to existing site context
Site Planning and Design

Greenery Coverage > 30% for all sites

- Extensive greenery more than the statutory requirement for site ecological value and its social value
- Well blended with different recreation provisions for socialization
- Bamboo which is fast-growing, highly adaptable and good at CO2 absorption was selected as the major species
Site Planning and Design

Ground Floor
Green Area: 605m²

Second Floor
Green Area: 806m²

Roof Floor
Green Area: 338m²
Rapidly Renewable Materials - Bamboo

- Required 3-7 Years for Maturity
- 20 times faster than some of the trees species hardwood flooring
- Does not have to replanted after each harvest
- Equally as durable as hardwood

Bamboo Veneer - 25%
Solid Bamboo - 24%
Energy Efficiency

District Cooling System (DCS)

- Operate at the **higher efficiency of the mix of chillers** (with different cooling capacity) when the actual usage is less
- **Minimized noise and vibration** caused by cooling or heating equipment
Energy Efficiency

Chilled ceiling air conditioning system (Block D)

Minimal space & parts are required
- No Fan Coil Units, Supply / Return air ductwork are required.
- Minimal space (100mm) is required for ceiling panels installation
- Improve floor height

Active control of fresh air supply with no return air
- Fresh air supply is essential to the system operation. Sufficient supply of fresh air ensures that air quality will be excellent
- Prevents cross infection and the spread of disease due to no return air strategy

<table>
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<tr>
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<th>Traditional A/C</th>
<th>Chilled Ceiling</th>
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<tbody>
<tr>
<td>Heat Transfer Mechanism</td>
<td>Mainly Convection</td>
<td>Mainly Radiation</td>
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<tr>
<td>Cooling Source Distribution</td>
<td>Concentrated (Air Grilles)</td>
<td>Evenly Distributed (Ceiling Panels)</td>
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<tr>
<td>Temperature</td>
<td>Not Even</td>
<td>Even</td>
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<td>Air Movement</td>
<td>Strong near Grilles</td>
<td>Mild</td>
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<td>Room Air</td>
<td>Recirculated</td>
<td>Once Through</td>
</tr>
<tr>
<td>Thermal Comfort Level</td>
<td>Acceptable</td>
<td>High</td>
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Water Conservation

Water Efficient Device
+
Rainwater & Grey Water Recycling

Rainwater
Cooling Tower Condensate Water
Grey Water Collected

→ Cleansing Water + Irrigation Water

• Rainwater recycling: reduce fresh water consumption for irrigation by 26.4%
• Greywater recycling: offers fresh water saving of 28.3%
Pleasant Indoor Environment

Natural Daylight & Glare Control

- Orientate in North-South direction to maximize daylight, reduce heat gain and reliance of artificial lighting
- Reduces the transmissions of solar radiation from direct sun rays
- Utilizes natural daylight
- Provides protection against glare
- Allows a view to the outside
- Protect privacy
- Optimize comfort in the workplace
Pleasant Indoor Environment

Acoustic Design

- Partition with excellent sound insulation and absorption performance is used
- Environmental-friendly Acoustics Panels are installed
- Vibration isolator, spring and neoprene are installed in vibration sources for exhaust mitigation
Operation and Maintenance
Green Education
Capacity Building & Monitoring

Working Group on Energy Conservation and Sustainability
• Formed in 2015
• Implementation of practical measures on energy conservation and sustainability by engaging staff and students
• Campus Development and Management Office, Information Technology Services Centre, Student Affairs Office, Vice-President (Organisational Development)’s Office and student representatives

Management Tools
• Building management system (BMS) for management of lighting system and MVAC system
• Energy audit, carbon audit and waste audit to assess the building performance and identify opportunities for improvement
Food Waste Recycling Scheme and Rooftop Farming

• The food waste will be delivered to a composter for processing
• The treated food waste will then be used as the organic fertilisers and applied on the organic farm on the roof top of the Sports and Amenities Centre

Education Events & Community Outreach

• In Jul 2015 “HSMC Symposium on Sustainability and Bamboo” was held in collaboration with UNESCO-APEID with around 300 participants
• Greening Workshop, Organic Planting Day, Visits on Organic Farm, green campus tour, etc.
Lessons Learnt
Lessons Learnt

Tailor-made Thinking
Lessons Learnt

Tailor-made Thinking

People Considerations
Lessons Learnt

Tailor-made Thinking

People Considerations

Green Living Campus
Lessons Learnt

Tailor-made Thinking

People Considerations

Green Living Campus

Capacity Building
Conclusion

Innovations

Green Design Features
Conclusion

Innovations
Green Design Features

Integration
Learning & Living
Mission of Education
Conclusion

Innovations
Green Design Features

Integration
Learning & Living
Mission of Education

Spirit of Green Building

Value
Young Generation

Inheritance
Vision

Young Generation
Thank you