

## Legislative Council Subcommittee to Follow Up Issues Relating to the Three-runway System at the Hong Kong International Airport

Third Runway Concourse and related Terminal Facilities, including Green/Environmental-friendly and Innovative Features

15 March 2016

# Green Design Principles for the 3RS Buildings

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#### **3RS Buildings - Green Airport Design**

#### Vision: HKIA as one of the World's Greenest Airports

 To strive for achieving the highest possible rating in the BEAM Plus Assessment of the 3RS Buildings

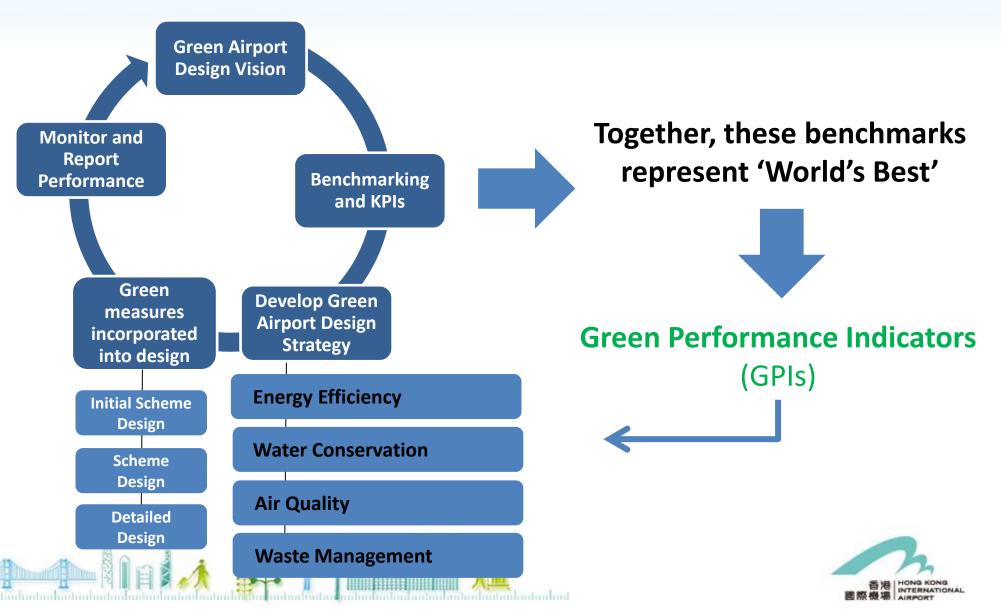


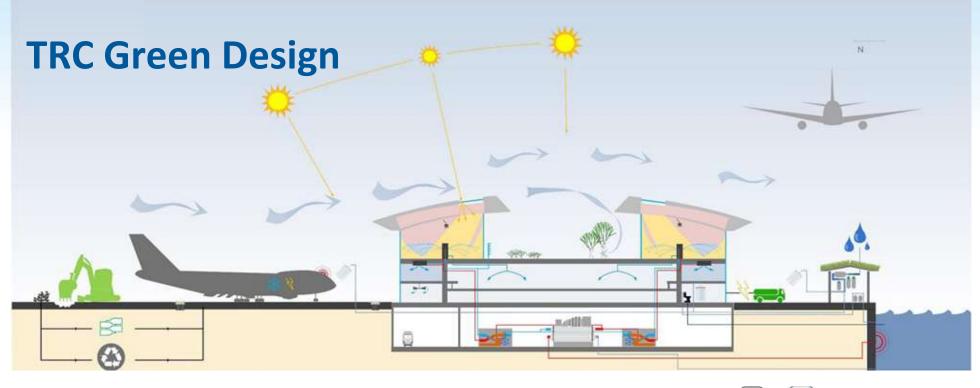






#### **3RS Buildings - Development of Green Design Strategy**











Solar shading & insulation



High performance glazing



Roof materials specified with high Solar Reflectance Index



Photovoltaic panels energy generation



**Highly efficient Lighting design** 



Local LED task lighting



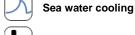
Occupant load sensing for escalators and walkways



Air Quality











Sea water flushing



Low flow fittings



Grey water / rain water recycling for irrigation



**Excellent Class in Indoor Air Quality** 



Charging stations for low emission electric vehicles







**Green construction** practices



**Green Tenant Guidelines** 



Material specification and modular / prefabrication construction



Source separation enabling processing where appropriate









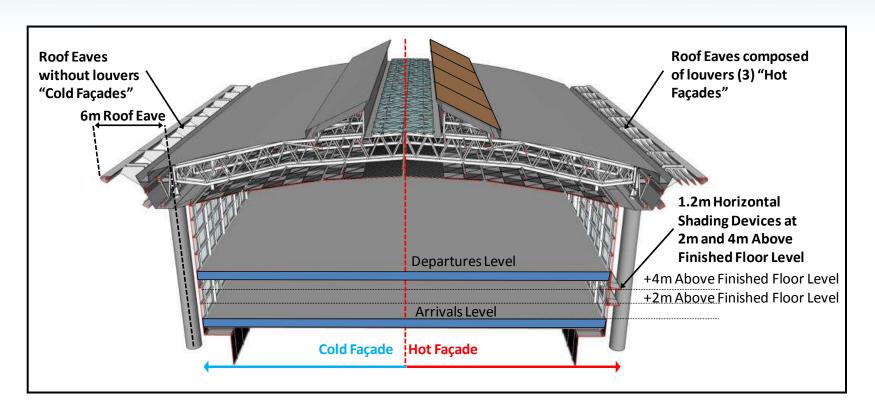








#### **3RS Buildings - Overall Shading Design Strategy**

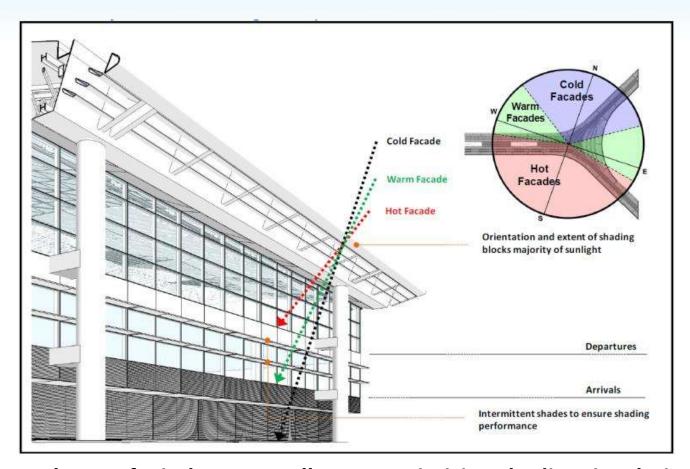


- Shading design strategy varies with response to building orientation
- To reduce solar heat gain and thereby lowering energy consumption





#### **Energy Efficiency - TRC Solar Shading and Insulation**



Balance of windows to wall areas optimizing shading, insulation and light penetration





#### **TRC Landscape Courtyard**

- Improve daylight conditions
- Green features to achieve passenger comfort

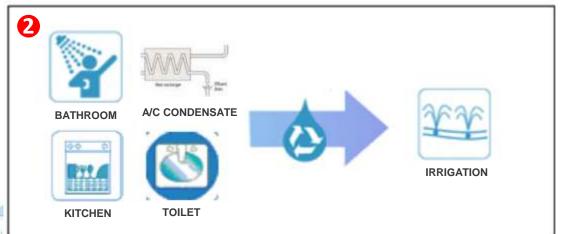




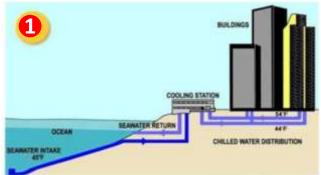


#### **3RS Buildings - Water Consumption**

- Reduce potable water consumption
- Maximize reuse of water
  - Seawater cooling
  - 2 System design to allow grey water collection
  - Cow water consumption flush fittings
  - 4 Low irrigation or zero irrigation soft landscaping











#### **3RS Buildings - Air Quality**

- Adhesive and Sealants, indoor carpet adhesives with Volatile Organic Compound (VOC) limit <50g/L</p>
- Paints and coatings, e.g. low-VOC oil-based paint with VOC limit <380g/L, VOC-free paint with VOC limit <5g/L</p>
- Carpet systems with low VOC label, such as Green Label in US
- Composite wood and agrifiber products with VOC limit < 30g/L</p>
- **(5)** Charging stations for low emission electric vehicles
- **6** Efficient APM system



















#### **3RS Buildings - Waste Management**

- Green procurement and construction
  - Use of reused and recycled materials in structural and non-structural elements including recycled content steel and PFA concrete
  - Prefabrication use of extensive prefabrication methods and modular design
  - Specification good and simple construction practices; reduction of construction waste
- Minimize and reduce waste
  - Source separation enabling processing where appropriate
  - On Site processing of organic waste









# Innovation and Technology in HKIA - kaataa kaa





#### **Vision**

Develop HKIA into a "Smart Airport"

 Develop a Technology Roadmap to provide implementation guidelines and achieve the smart airport vision

 Make effective use of technology and innovation to improve passenger experience and operation efficiency





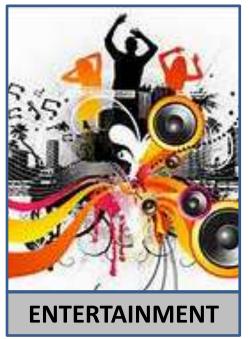
#### **New Generation of Passengers**

















#### **Providing Platform to Promote Innovation & Technology**

HKIA Technovation Board

Steer and Drive technology and innovation development

#### HKIA Future Airport Taskforce

- Engage airport community in technological innovations
- Seek industry requirements

### HKIA Airport Technology Advisory Council

- Seek inputs on futuristic technology and innovation for HKIA
- Facilitate the participation of local technologies at HKIA

### HKIA Innovation Centre

- Conduct Proof-of-Concept
- Provide platform to nurture local technology and research



**HKIA Technovation Fund** 



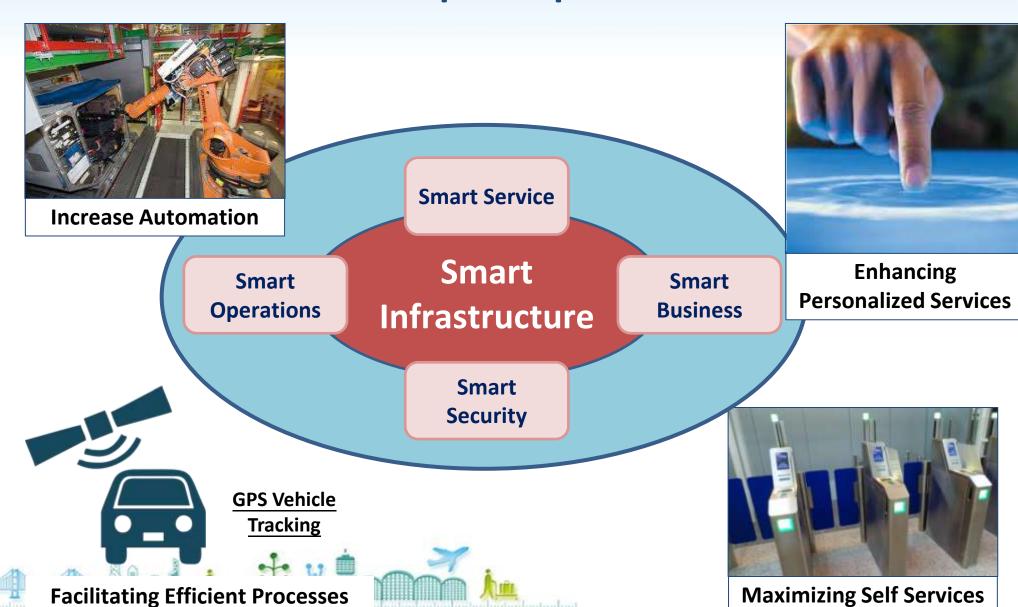
**HKIA Technovation Conference** 







#### **New Generation of Airport Operations**



#### **Increasing Automation**







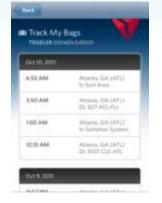


#### **Enhancing Personalized Services**





**Way Finding** 



Baggage Collection
Notification



**Virtual Signage** 



**Retail Promotion** 



**Boarding Alert** 



**F&B Ordering** 





#### **Maximizing Self-Services**















#### **Facilitating Efficient Processes**







**RFID Baggage Handling** 













Video Analytics for Passenger Flow and Queue Management



### **THANK YOU**



