Functions of Ventilation Facilities for Railway System
鐵路系統通風設施的功能

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Functions of Railway Facilities
通風設施的功能

Needs for Ventilation 通風需要

- Ventilation facilities bring fresh air to stations and trains underground.
- 通風系統為地下車站及列車提供新鮮空氣

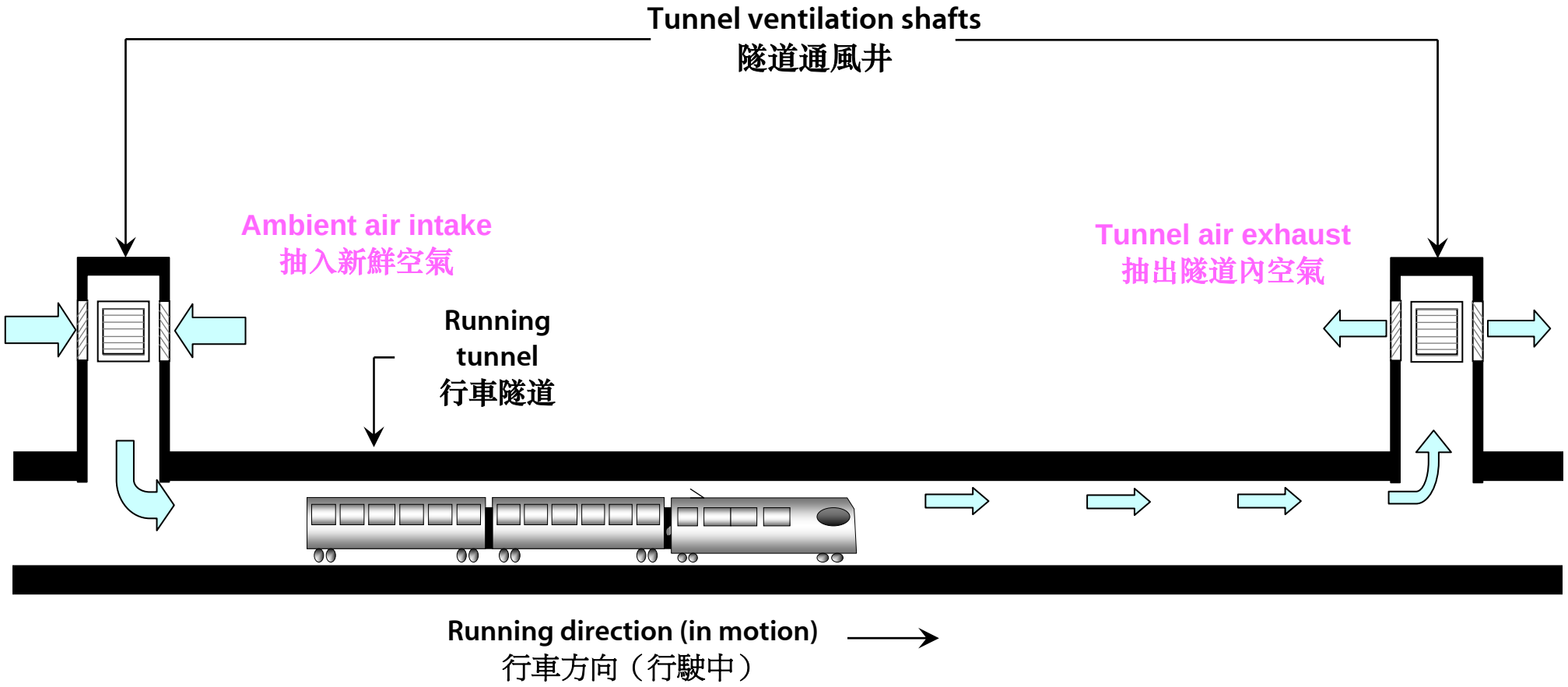
- MTR trains are powered by electricity and do not generate emission.
- 港鐵列車以電力推動，不會產生廢氣

- Exhaust from MTR ventilation openings does not contain any undesired emissions or pollutants.
- 港鐵系統的通風口排出的空氣並不含有害排放物或污染物

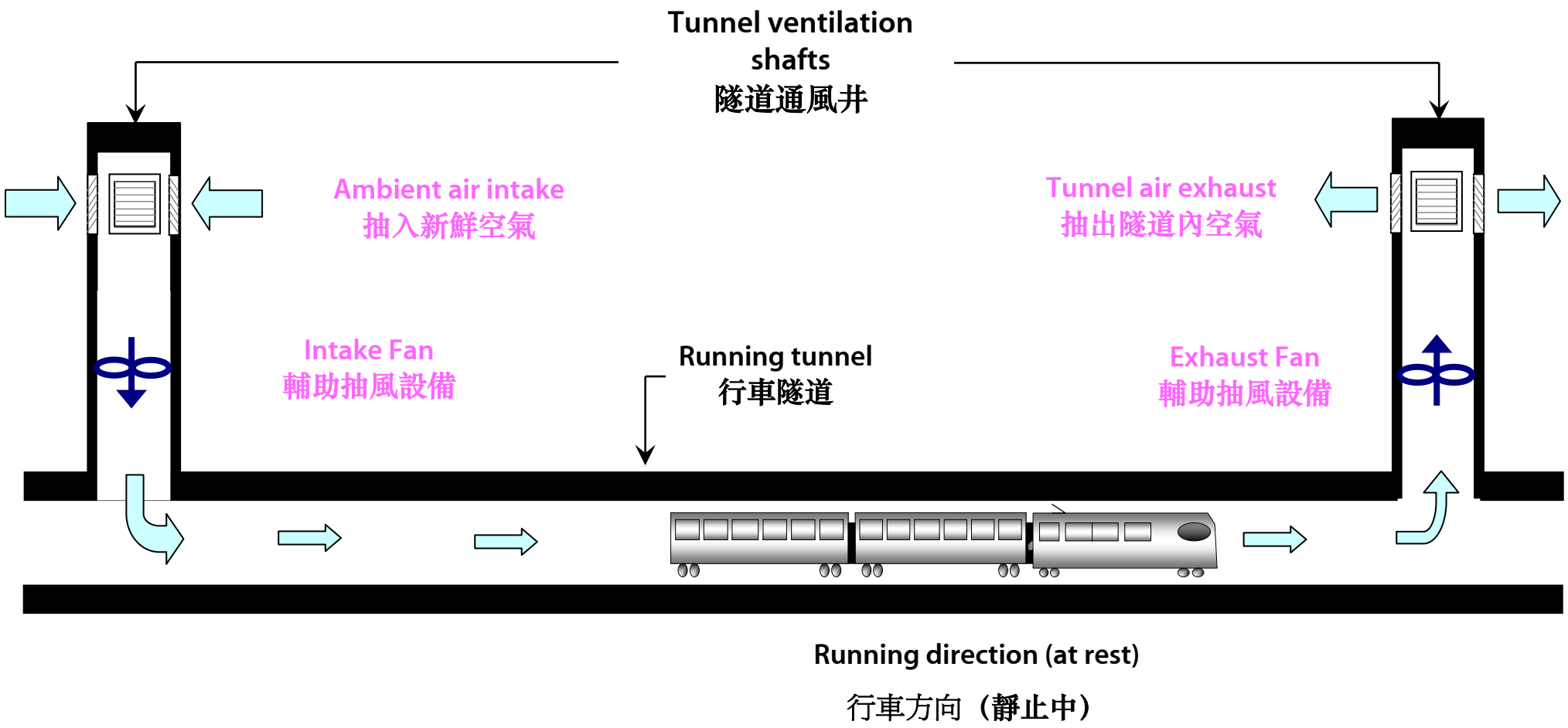
Ventilation in Tunnels 隧道通風

Tunnel spaces where ventilation is essential
鐵路隧道必須設通風設施保持空氣流通

Tunnel Ventilation System - Piston Effect
隧道通風系統 - 活塞效應



Tunnel Ventilation System - Air Extraction
隧道通風系統 – 抽出隧道內空氣

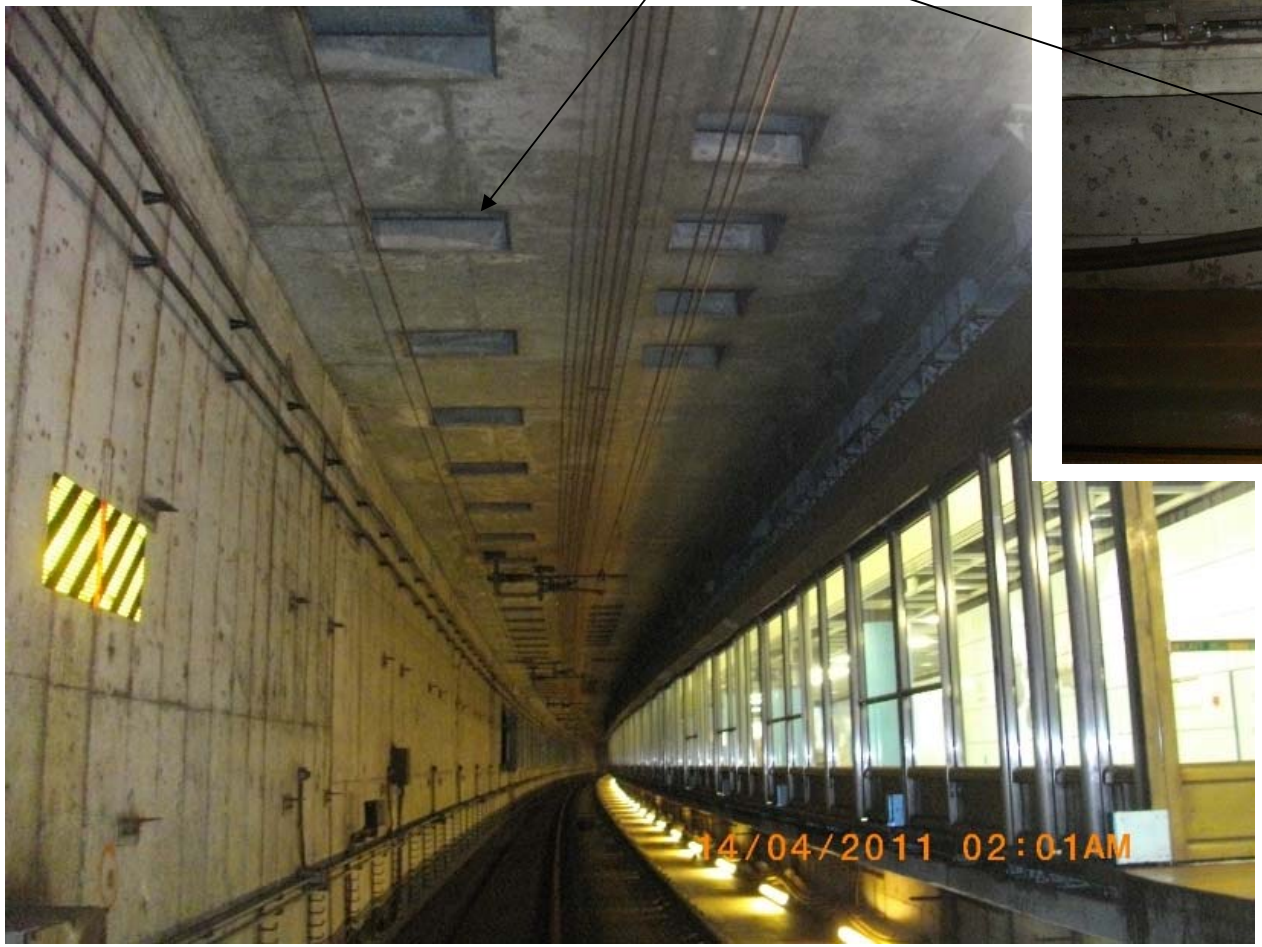


Ventilation in Stations 車站通風

Station spaces where ventilation is essential
車站空間必須設通風設施保持空氣流通

Ventilation in Trackways 月台軌道通風

Ventilation openings
通風口



Trackway spaces where ventilation is essential
鐵路系統的月台軌道必須設通風設施保持空氣流通

Ventilation Control 通風控制

Real-time monitoring of air temperature and humidity within the railway system
鐵路系統內的溫度和濕度須實時監控

Design Requirements 設計上的要求

- All ventilation facilities are required to comply with the Noise Control Ordinance.
- 所有通風設施須符合<<噪音管制條例>>

- Maximum velocity of ventilation exhaust: 3 metres per second
- 通風設施出風口的最高風速：每秒三米

- All ventilation facilities are required to comply with the statutory codes of the Fire Services Department:
  - ventilation openings should be at least 5m away from buildings nearby.
  - ventilation openings should be at least 3m above the pedestrian level.
- 所有通風設施須符合消防處訂定的要求：
  - 通風口與鄰近建築物要保持最少五米距離
  - 通風口的高度須與行人路面保持最少三米距離

- All ventilation facilities are designed against flood.
- 所有通風設施須確保有足夠的防洪保護

Flood Protection 防洪保護

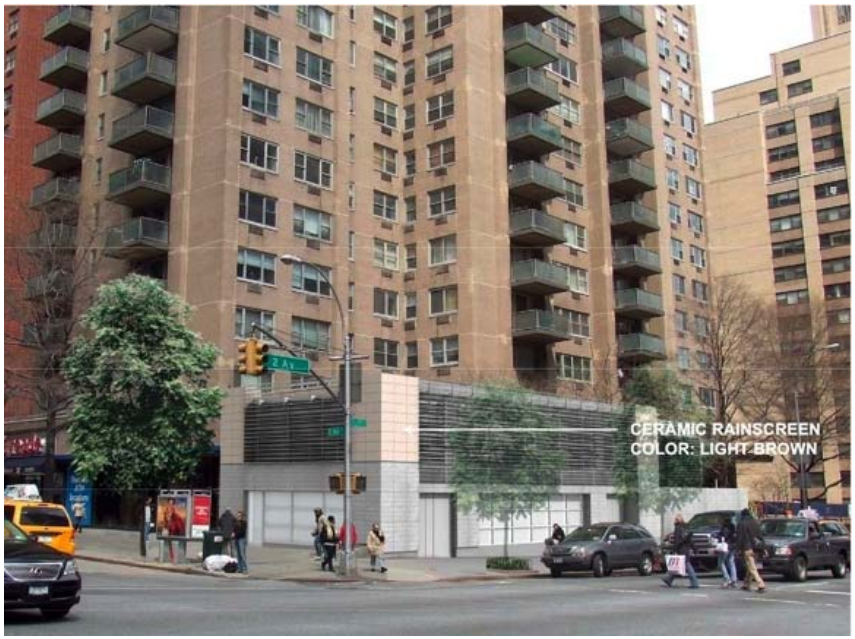
Metro Taipei's services suspended for 3 months in 2001
台北捷運 2001年因水浸需暫停服務三個月

Design of Ventilation Facilities
通風設施的設計

Appearance of Overseas Ventilation Facilities
海外通風設施的外觀

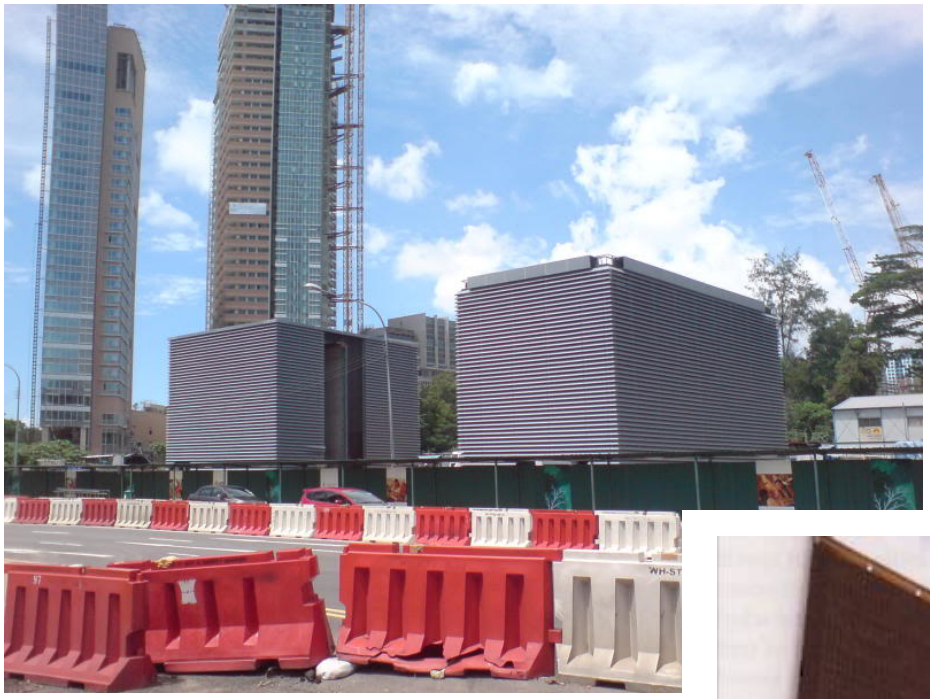
Railway Ventilation Shafts in London
英國倫敦的鐵路通風設施

Ventilation Structures in New York
美國紐約的鐵路通風設施



*Photomontages
*電腦模擬圖

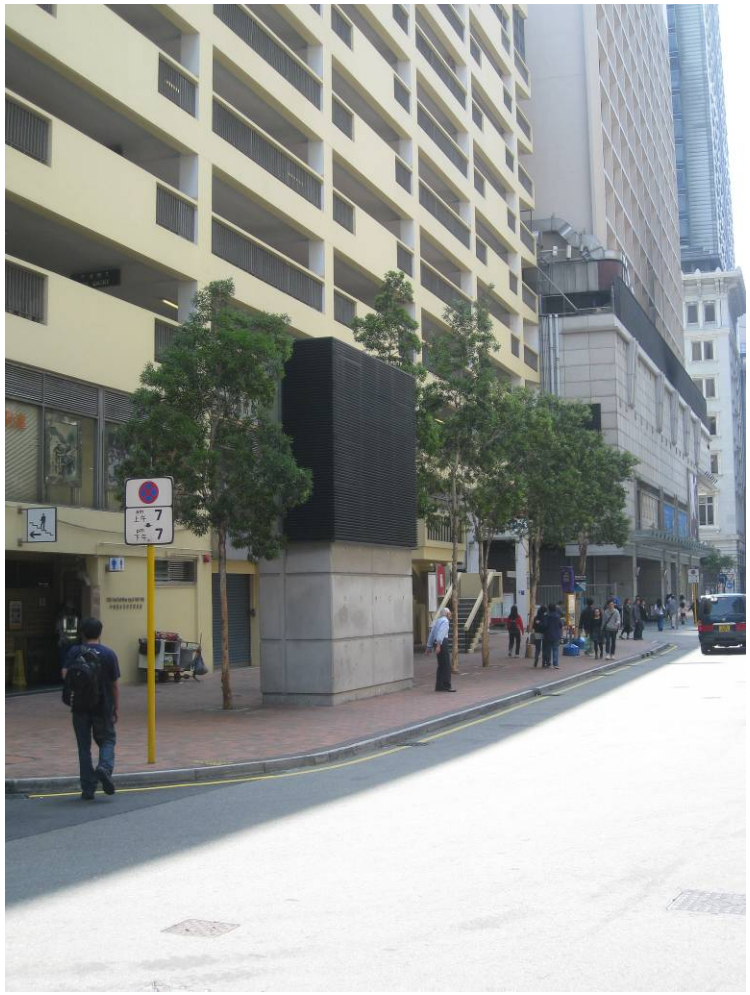
Railway Ventilation Shafts in Singapore
新加坡的鐵路通風設施



Visual Treatments of MTR Ventilation Facilities (1) - Reduction in Scale

港鐵通風設施的設計手法 (一) - 減少設施規模

Reduction in Scale of Ventilation Facilities
通風設施之體積盡量縮少



Ventilation facilities in urban area – size reduction & vegetation
設於市區的通風設施 – 縮少體積及種植樹木加以美化

Visual Treatments of MTR Ventilation Facilities (2) - Integration with Surrounding Environment

港鐵通風設施的設計手法 (二) - 融入周邊環境

Integration with Above-ground Structures
通風設施與地面建築物結合

MTR LOHAS Park Station - ventilation facilities integrated with station entrance
港鐵康城站 － 通風設施結合車站出入口的設計

Integration with Above-ground Structures
通風設施與地面建築物結合

MTR Admiralty Station entrance at Three Pacific Place
– ventilation facilities integrated with pavilion and landscape
港鐵金鐘站通往太古廣場三期的出口
– 通風設施與路面避雨亭及戶外園景融合的設計

Integration with Above-ground Structures
通風設施與地面建築物結合

Kennedy Town Station of West Island Line – ventilation facilities integrated with station entrance
西港島線堅尼地城站 – 通風設施結合車站出入口的設計

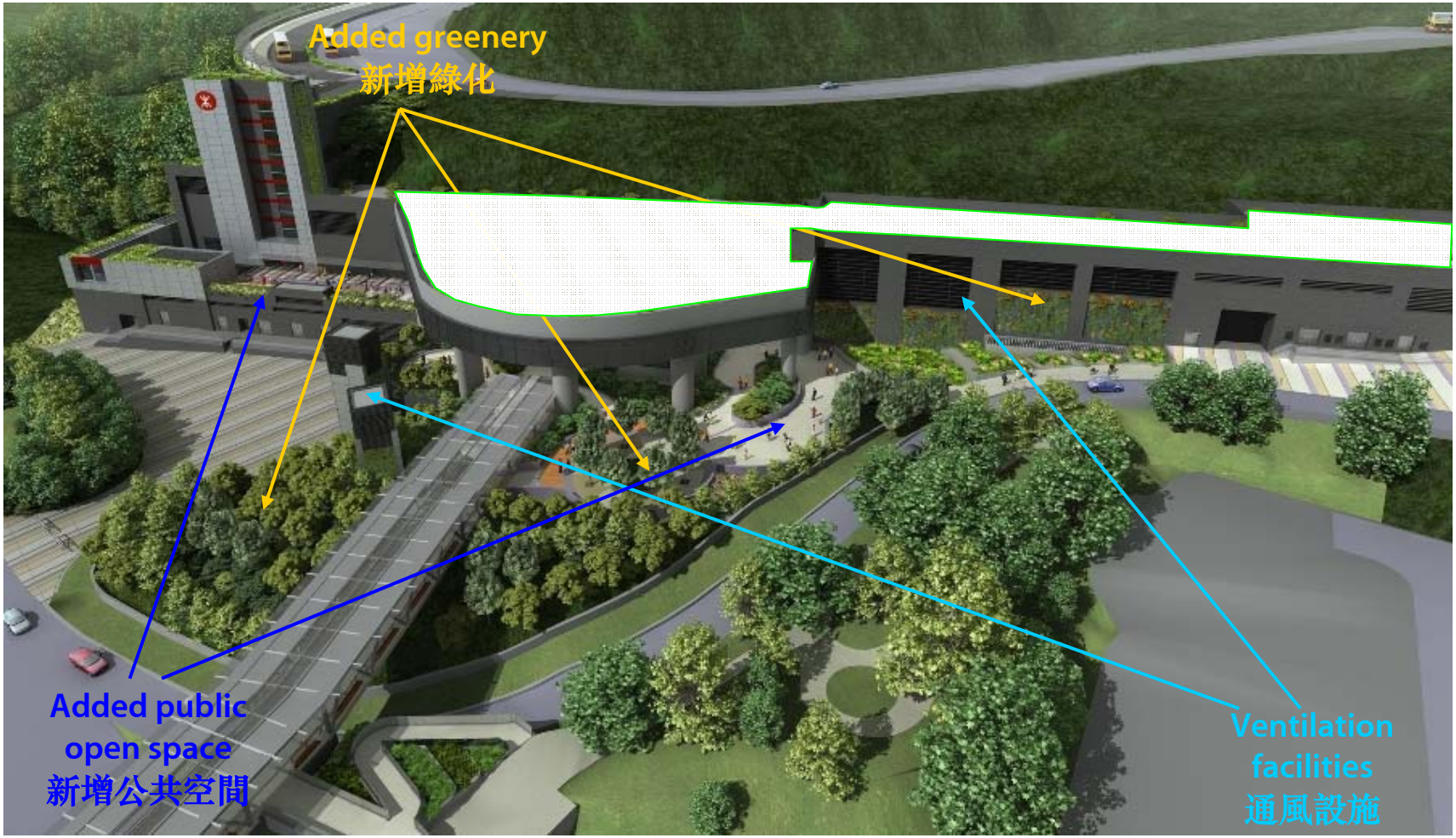
Blending in with Surrounding Environment
通風設施與四周環境融合

South Horizons Station of South Island Line (East)
– ventilation facilities embedded in a slope
南港島線(東段)海怡半島站 – 採用通風設施崁入山坡的設計

Visual Treatments of MTR Ventilation Facilities (3) - Green Design

港鐵通風設施的設計手法 (三) -採用綠化設計

Adoption of Green Design
通風設施採用綠化設計



Homantin Station of Kwun Tong Line Extension – green design for ventilation facilities
觀塘線延線何文田站的通風設施採用綠化設計

Ventilation Shafts Disguised with Greening
通風設施以園林設計隱藏

Green Wall
綠化牆

Kennedy Town Station of West Island Line
– adoption of green wall
西港島線堅尼地城站通風設施 - 採用綠化牆

MTR Yau Tong Station – adoption of green wall
港鐵油塘站 – 採用綠化牆設計

Visual Treatments of MTR Ventilation Facilities (4)
- Provision of another function/ identity

港鐵通風設施的設計手法 (四)
- 注入額外功能

Ventilation Facilities with added identity
通風設施被設計成具額外功能之建築

MTR Sheung Wan Station – ventilation facilities revitalized
港鐵上環站 — 通風設施被改造及活化

Ventilation Shaft Designed as Art Objects
通風設施的設計滲入藝術元素

Ventilation shaft designed as artwork in Paternoster Square, London
倫敦帕特諾斯特廣場的通風設施被設計成雕塑

Ventilation shaft design for Crossrail, London
倫敦Crossrail的通風設施設計

Ventilation Shaft with Other Identities
通風設施被設計成具額外功能之建築

Future MTR Admiralty Station within Harcourt Garden
- ventilation structure integrated with clock tower
夏慤花園內的港鐵金鐘站 - 通風設施將採用鐘樓設計

Another ventilation structure
designed as public artwork
通風設施被設計成公共藝術品

Conclusion
總結

Conclusion 總結

- Functions of railway ventilation facilities:
  - Maintaining air quality in stations & trains
  - Maintaining reasonable temperature & humidity in railway system
- 地下鐵路通風設備的功能：
  - 維持車站和車廂內的空氣質素
  - 保持鐵路系統內適當的溫度和濕度

- Ventilation facilities are critical to safety of railway system.
- 通風設備是鐵路系統的重要安全設備

- Appropriate architectural adjustments will be made to mitigate visual impact brought about ventilation facilities.
- 港鐵公司會盡量在建築設計上作適當調整，減少通風設施所帶來的視覺影響，令市民更為接受

- The general public may not understand the functions of railway ventilation facilities and may have opinions on their appearance. MTR Corporation will reinforce public communication in this regard.
- 市民未必理解鐵路系統通風設施的功能，或對其外觀有意見；港鐵公司會加強與公眾的溝通