

# Bring Sustainable Neighbourhood Design into Reality - Case Sharing by Brickell City Centre, Miami

Mr. Benny Au

SD Manager, Swire Properties Limited



International Co-owners:



# Background



International Co-owners:

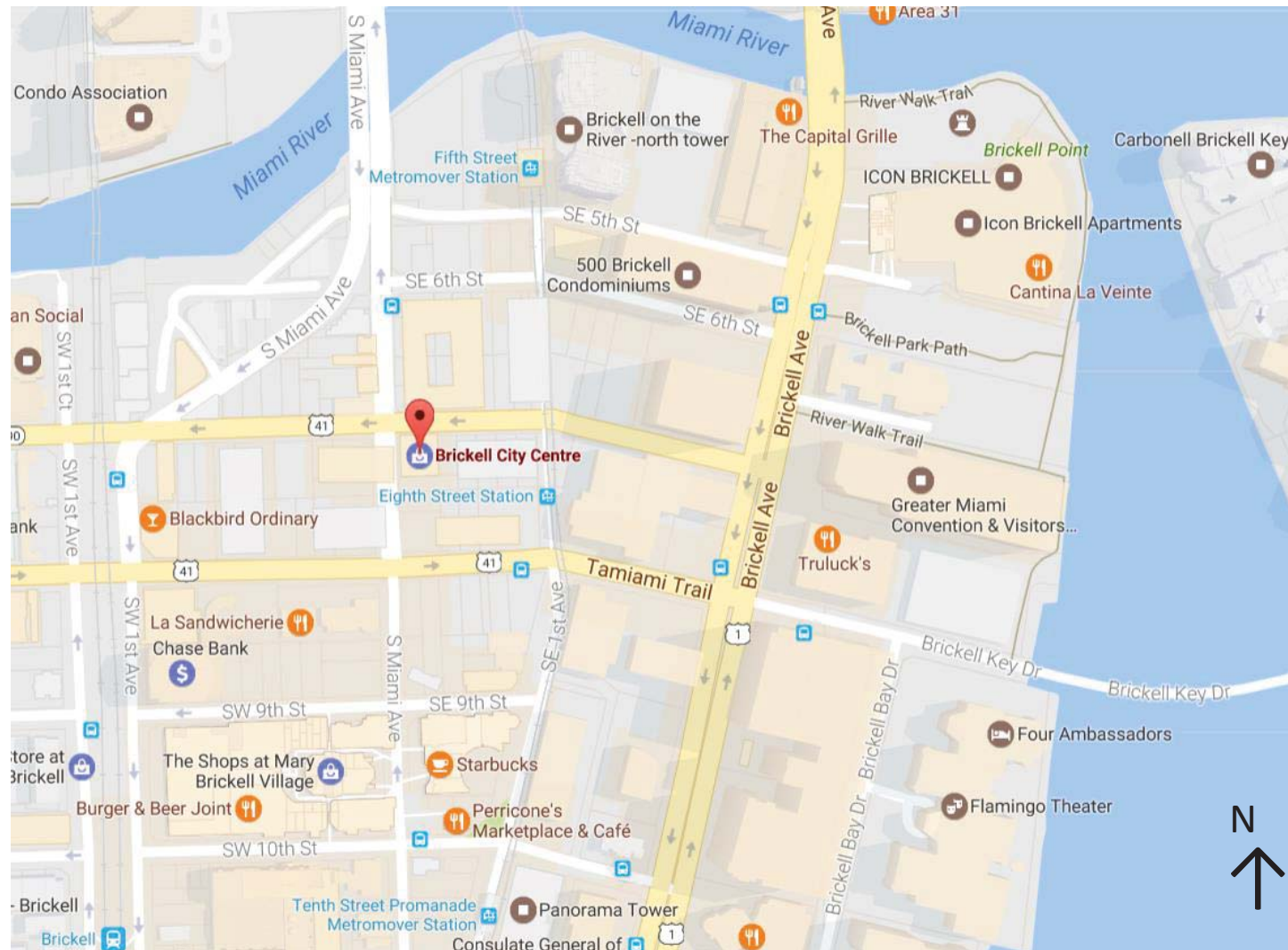


Sustainable Buildings and Climate Initiative  
Promoting Policies and Practices for Sustainability



Global Alliance  
for Buildings and  
Construction

# Brickell City Centre in Miami



Organisers:



International Co-owners:



# Brickell City Centre in Miami



**Location:** Centre of South Florida's international trade and finance corridor,

**Size:** 5.4 million ft<sup>2</sup> of office, residential, hotel, retail and entertainment space.

**Composition:**

- 2 condominium towers,
- 2 office buildings,
- 1 hotel and;
- 500,000 ft<sup>2</sup> open-air shopping centre



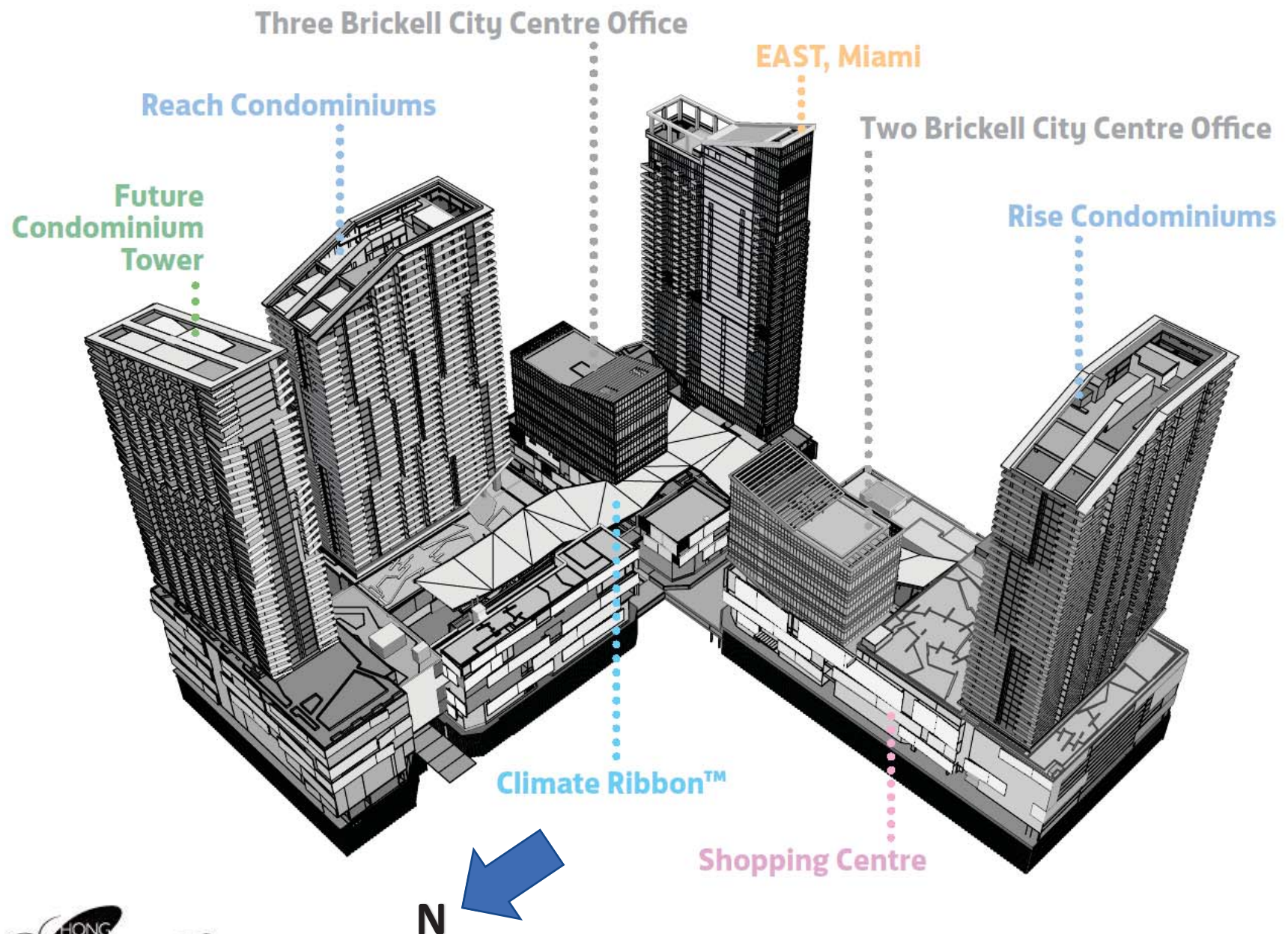
Organisers:



International Co-owners:







Organisers:



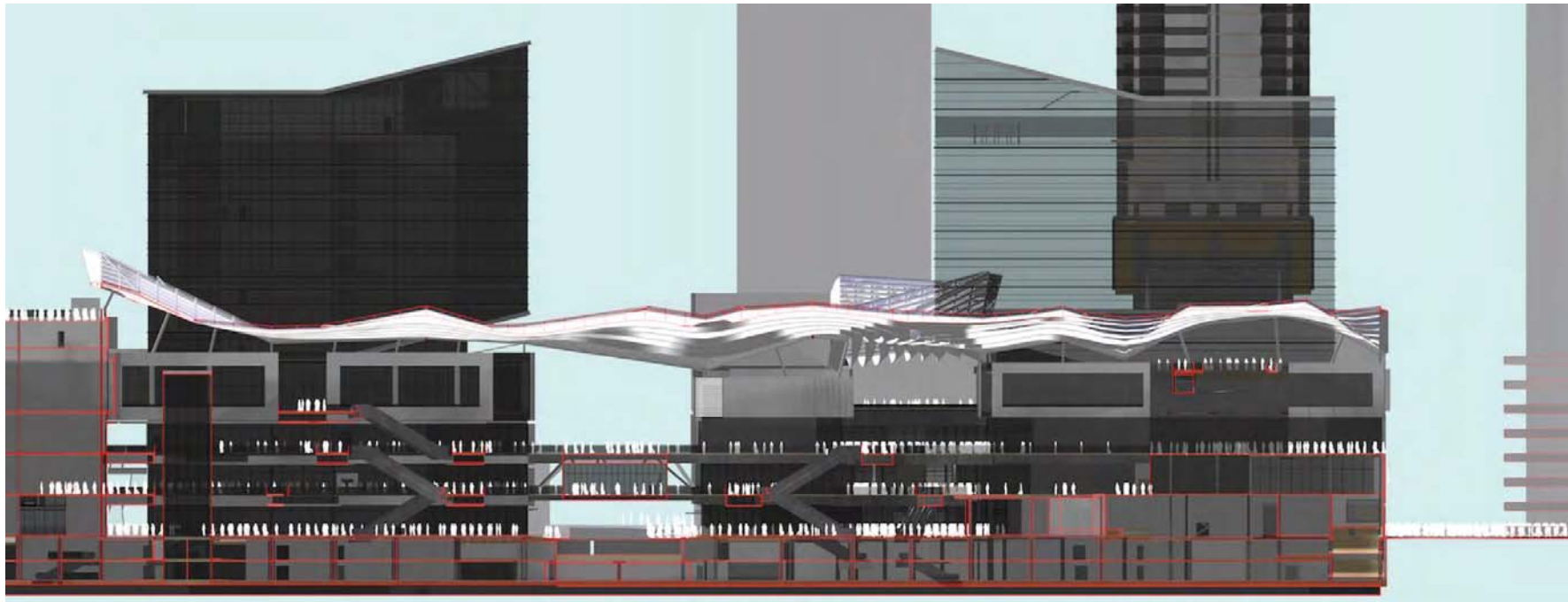
International Co-owners:



Sustainable Buildings  
and Climate Initiative  
Promoting Policies and Practices for Sustainability



# Brickell City Centre in Miami



International Co-owners:



Sustainable Buildings and Climate Initiative  
Promoting Policies and Practices for Sustainability



Global Alliance  
for Buildings and  
Construction



# Sustainable Neighborhood Elements

- improving connectivity in multiple ways (to public transportation, minimized vehicular circulation for a project this size, increased pedestrian circulation)
- improved neighborhood micro-climate as per heat island effect
- overall improvement of having a thriving mixed-use development energizing the neighborhood and providing new places to live, work and play where before there were empty blocks

# Climate Ribbon™



International Co-owners:

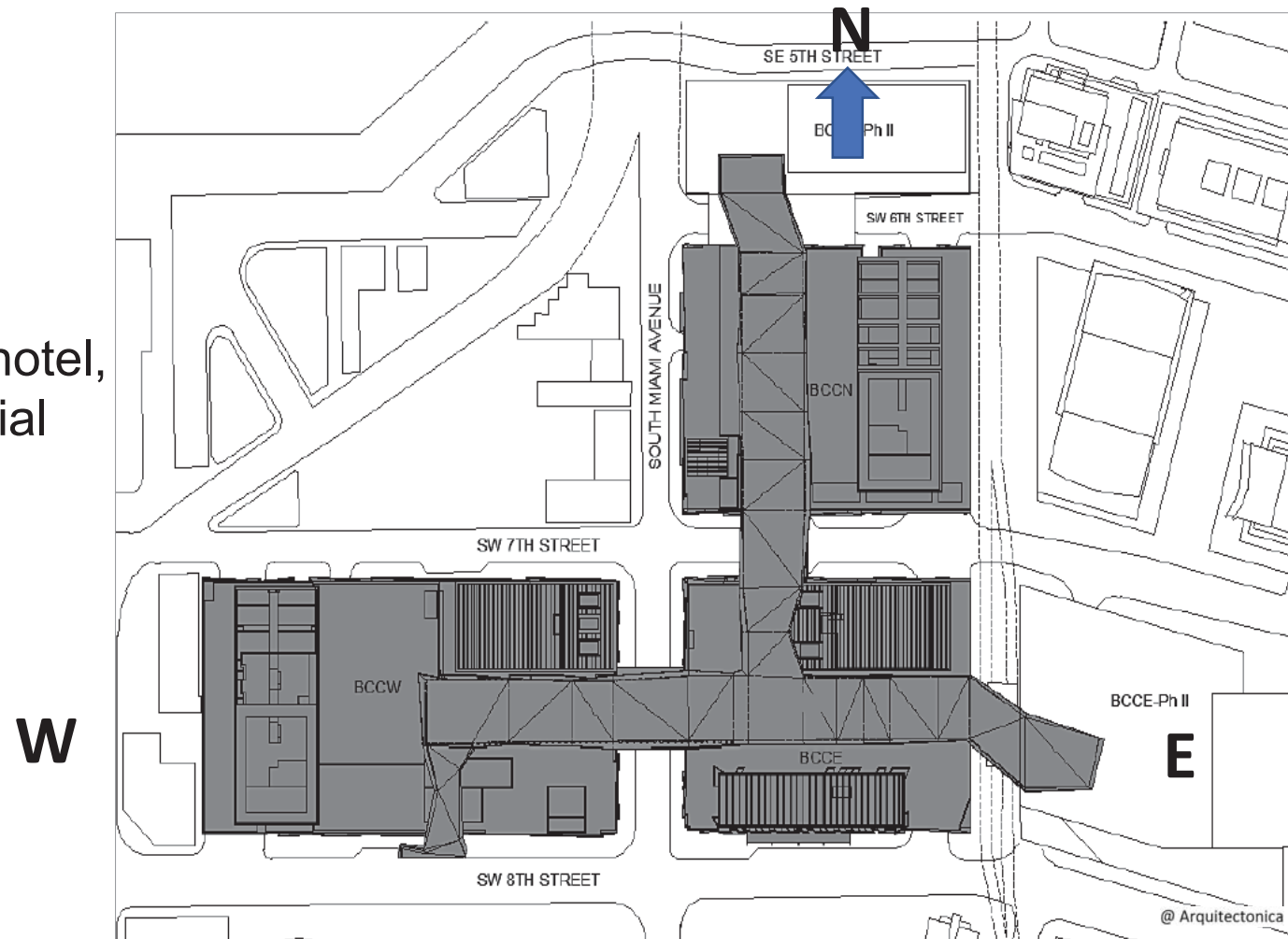




# Climate Ribbon™

The unique sustainable architectural feature

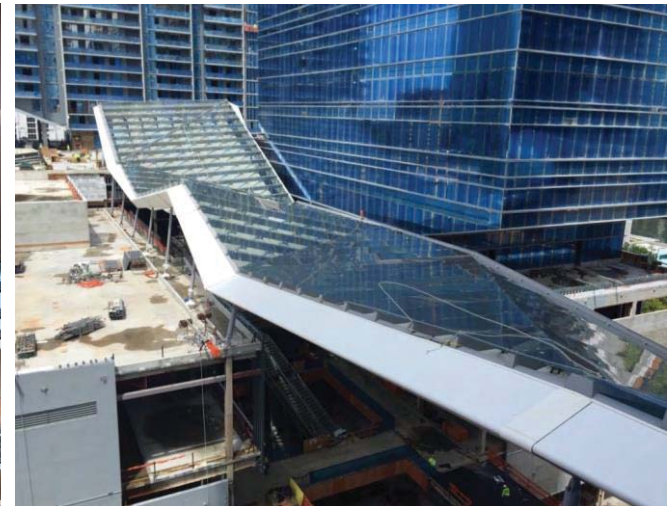
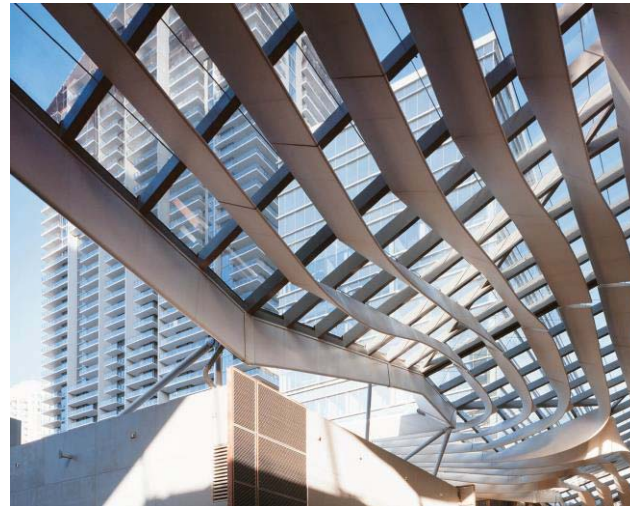
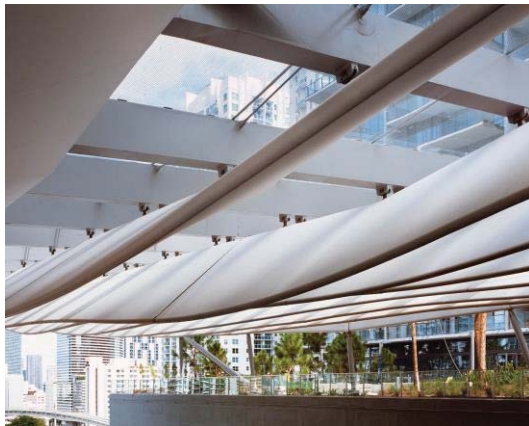
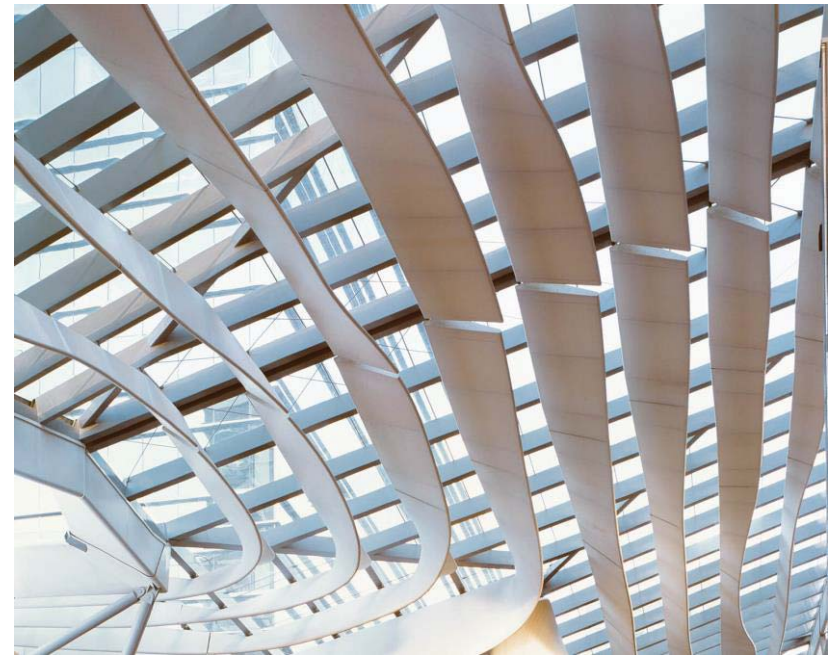
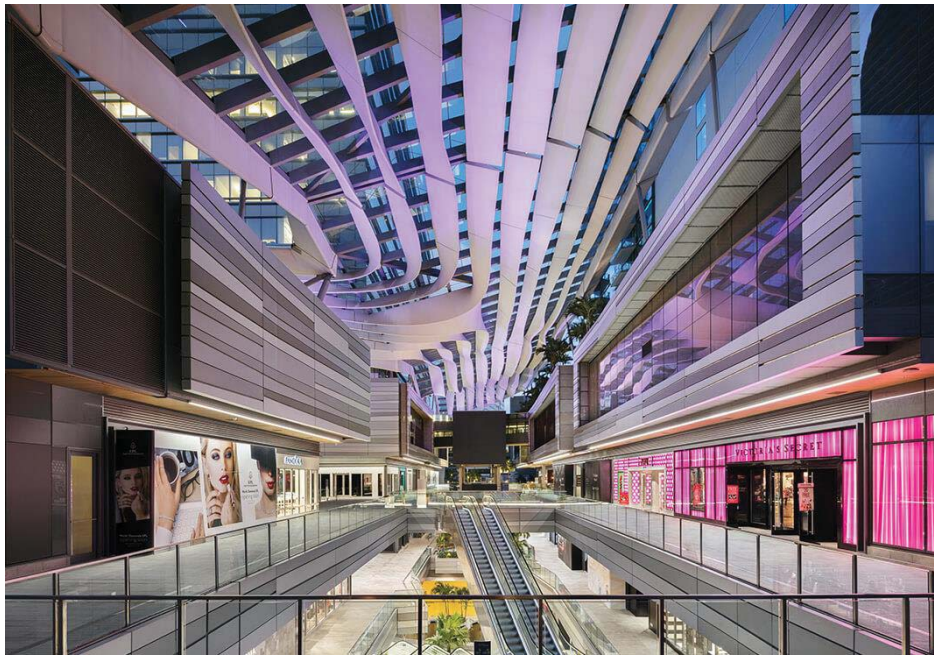
100,000ft<sup>2</sup> Climate Ribbon™ ties the hotel, office and residential towers together~



International Co-owners:







@ Erieta Attali



International Co-owners:





# 3 Passive Approaches



A breeze path



A sun shade



A rainwater collector



@ Erieta Attali



Organisers:



International Co-owners:

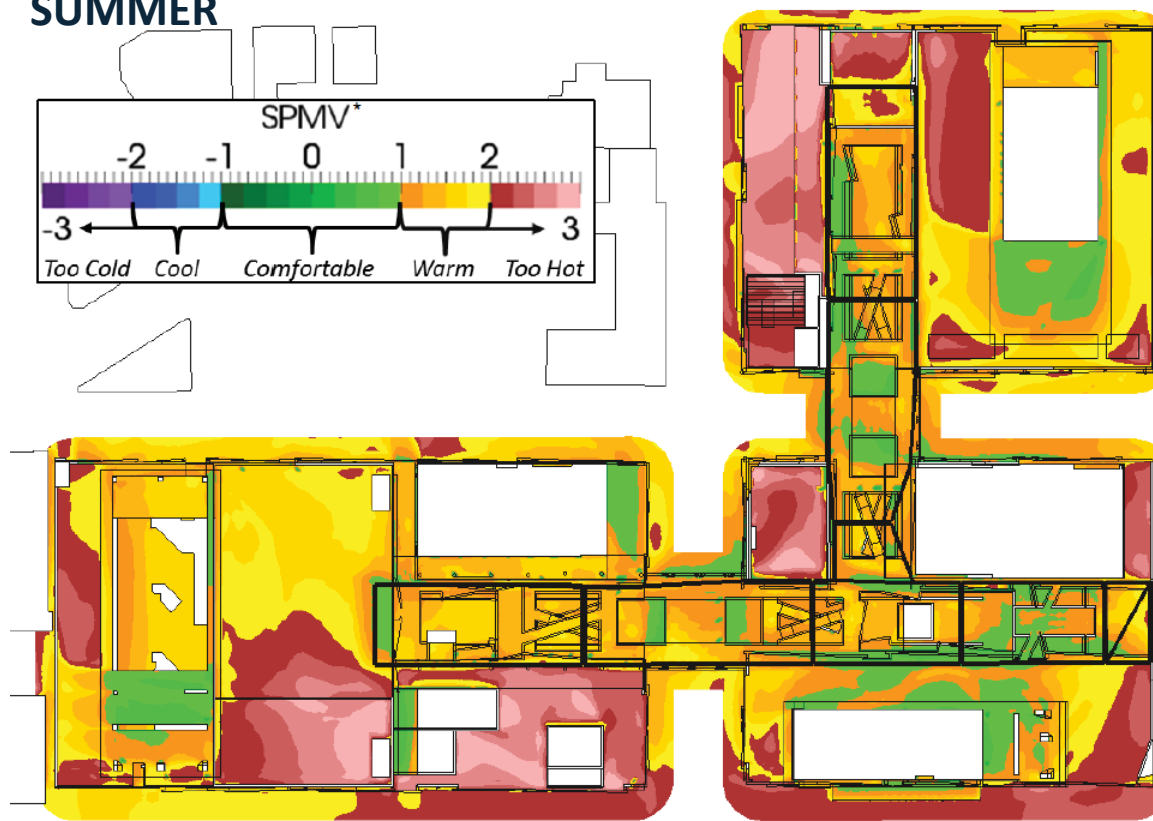
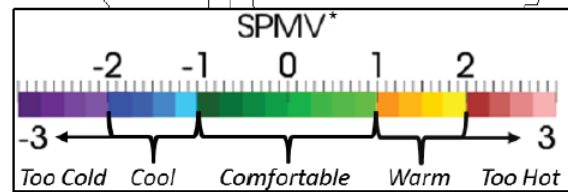




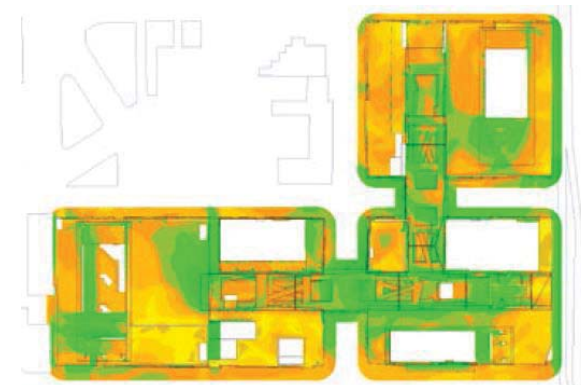
# ≡ A Breeze Path

Overall thermal comfort underneath the Climate Ribbon™ in summer time is significantly cooler than the surrounding sidewalks.

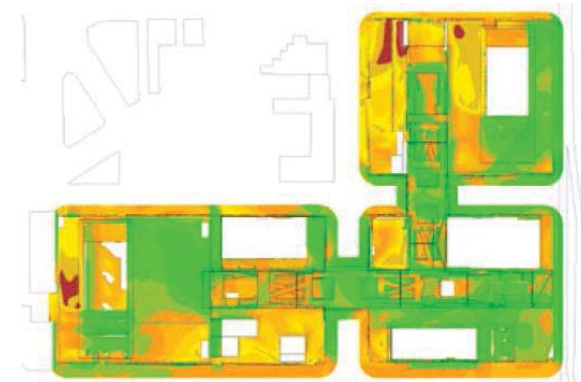
## SUMMER



noon



morning

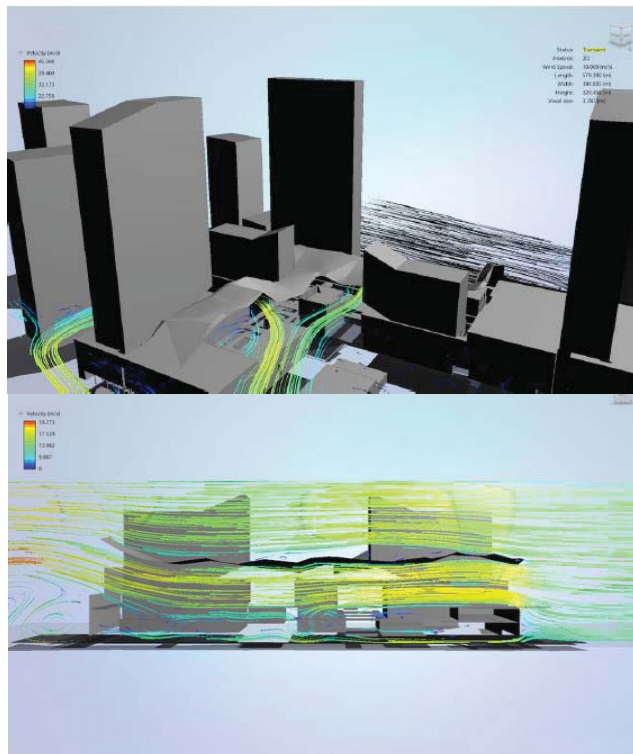


afternoon

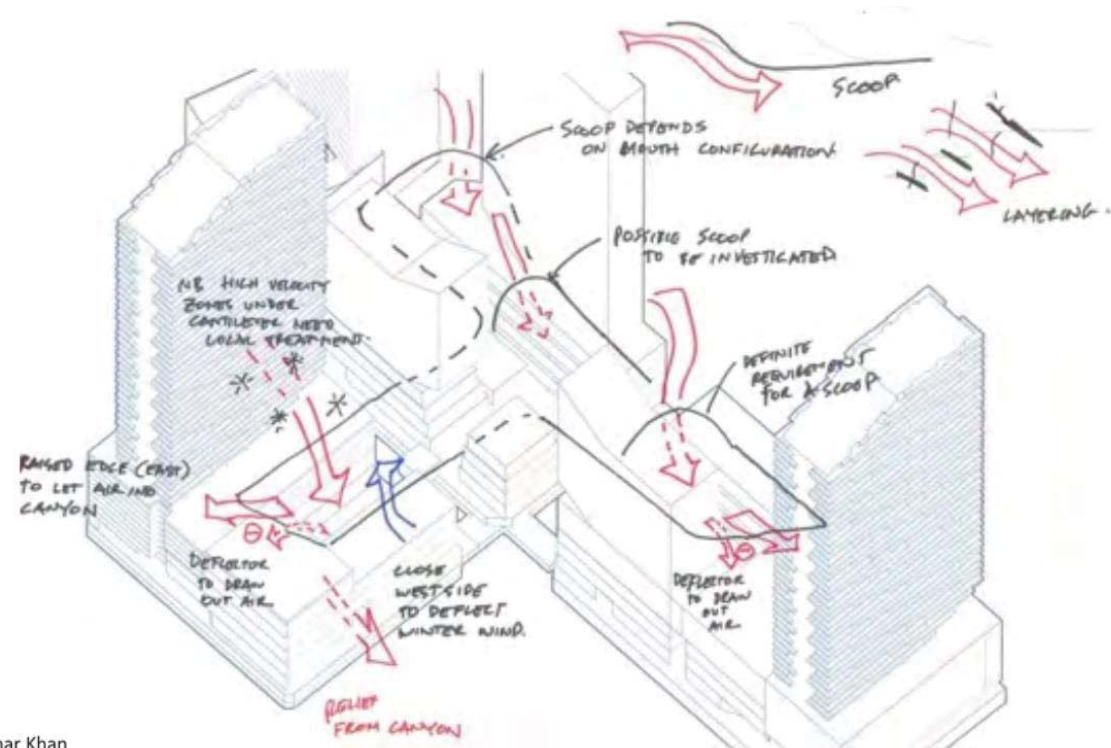
@ RWDI

# ≈ A Breeze Path

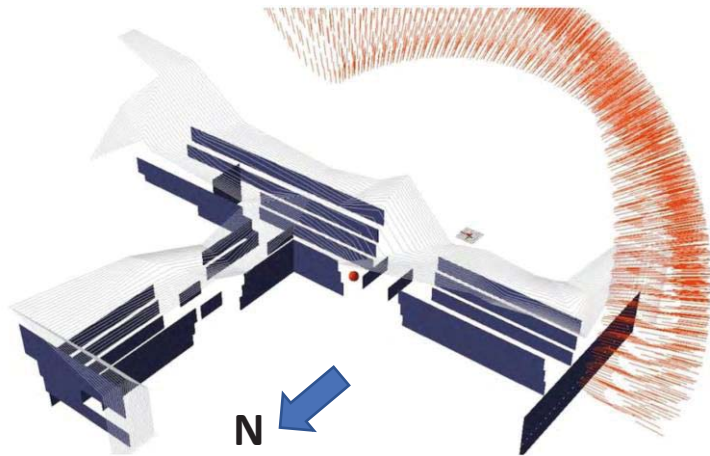
CFD simulation results indicate air flow will be maintained at approximately 3 to 4.6m/s at all times throughout the centre. The thermal conditions at approximately 90% of the locations studied in the public realm under the Climate Ribbon™ will be better than outdoor ambient levels



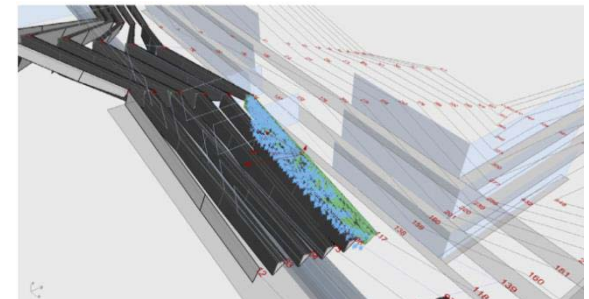
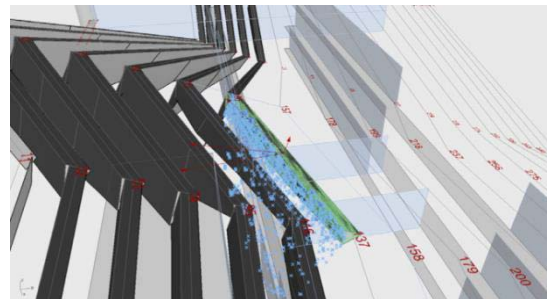
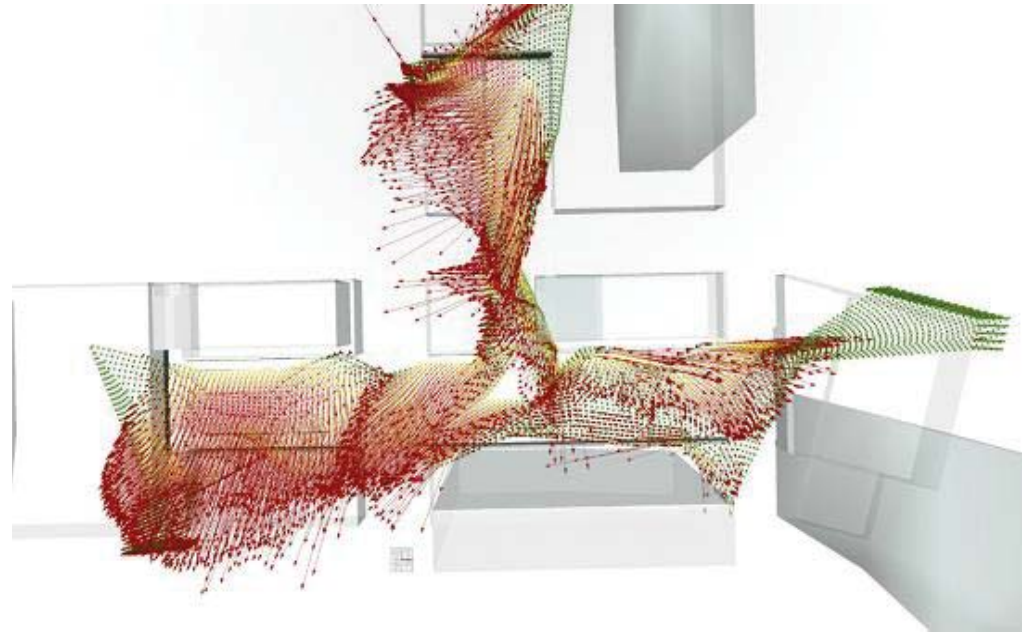
@ Azhar Khan



# A Sun Shade



Solar exposure at each location on an hourly basis has been predicted by modeling.

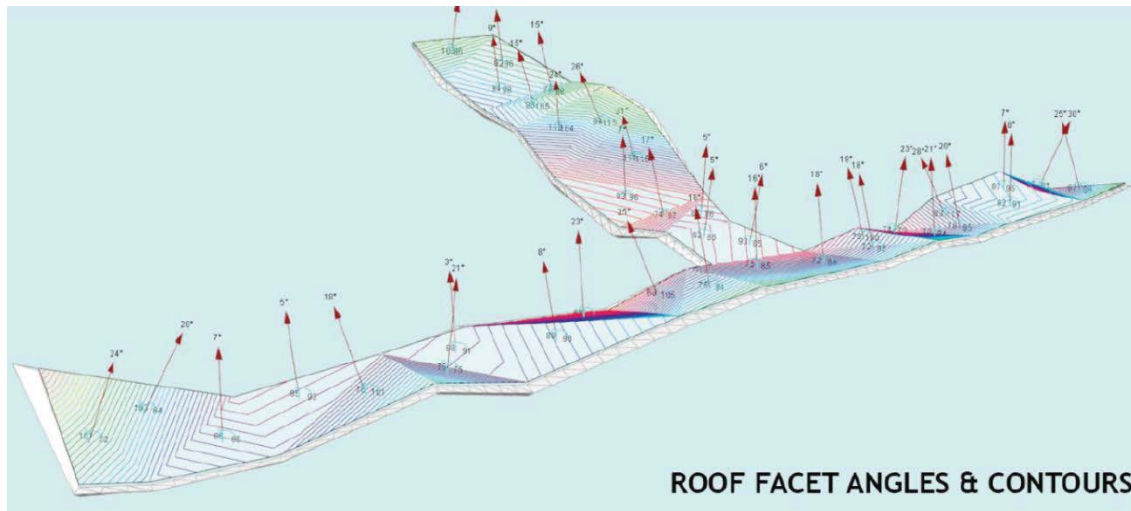


@ Sébastien Perrault

Optimized design is achieved with longitudinal blades perpendicular to the sun angles.

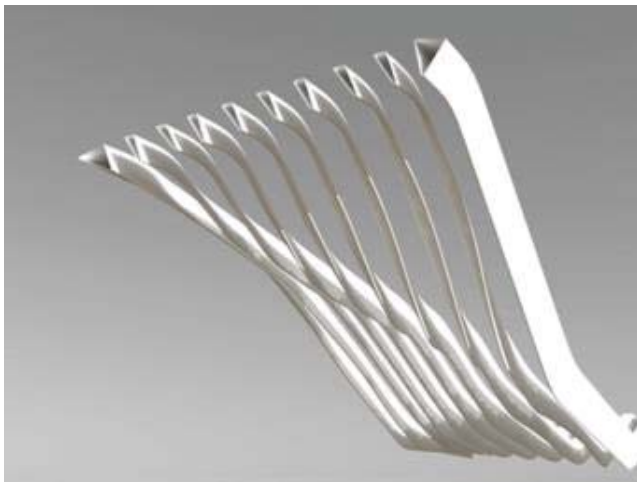


# A Rainwater Collector



@ Sébastien Perrault

It is predicted that 4.3 million gallons of rainwater for reuse annually. The harvested rainwater provides 100% of the irrigation water and cooling tower make-up water



The surfaces are inclined and sloped to channel rainwater to specific collection points



Organisers:



International Co-owners:



# Conclusion

- Climate Ribbon™ provides a naturally lit, covered, naturally cooled environment for pedestrians and becomes an innovative solution to creating a favourable microclimate for the neighbourhood.
- Integral with its connectivity with a site-integrated light rail station, Brickell City Centre becomes a vibrant and connected community hub in the heart of Miami.

# Acknowledgement

**Client:** Swire Properties, Hong Kong and Miami

**Architects:** Arquitectonica, Miami, Florida

**Climate Ribbon Designer:** Hugh Dutton Associés, Paris

**Sustainability peer reviews:** University of Carnegie Melon and Cardiff University

**Wind tunnel consultants and testing:** RWDI, Guelph, Ontario Canada

**General Contractor:** Americaribe Morarity Joint Venture

**Climate Ribbon Design Build contractor:** Gartner, Wurzburg, Germany

**Steel Subcontractor:** Signum SPOL, Czech Republic

**Glazing supplier:** Eckelt, Austria

**Fabric engineering:** FTL Stuttgart

**Fabric Manufacturer:** Cannobio Italy



Organisers:



International Co-owners:





# Thank you



Organisers:



CONSTRUCTION  
INDUSTRY COUNCIL  
建造業議會



HKGBC  
香港綠色建築議會



SBE  
SERIES



International Co-owners:



Sustainable Buildings  
and Climate Initiative  
Promoting Policies and Practices for Sustainability



Global Alliance  
for Buildings and  
Construction