

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

Mr. Benny Au

SD Manager, Swire Properties Limited



Organisers:



International Co-owners:



Sustainable Buildings
and Climate Initiative
Promoting Policies and Practices for Sustainability



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Background



Organisers:



International Co-owners:

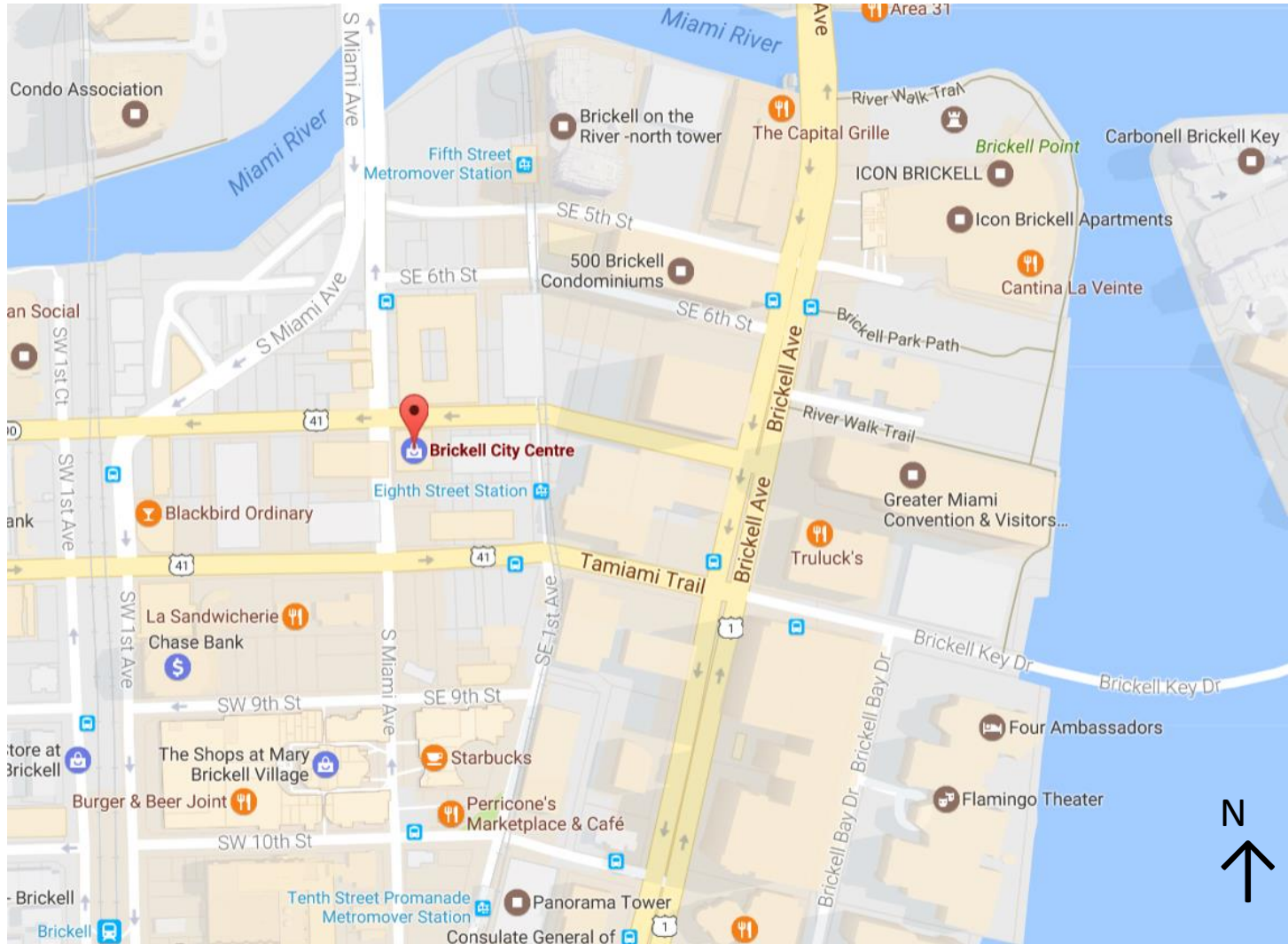


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Brickell City Centre in Miami



Organisers:



International Co-owners:



Brickell City Centre in Miami



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

Size: 5.4 million ft² of office, residential, hotel, retail and entertainment space.

Composition:

- 2 condominium towers,
- 2 office buildings,
- 1 hotel and;
- 500,000 ft² open-air shopping centre



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Three Brickell City Centre Office

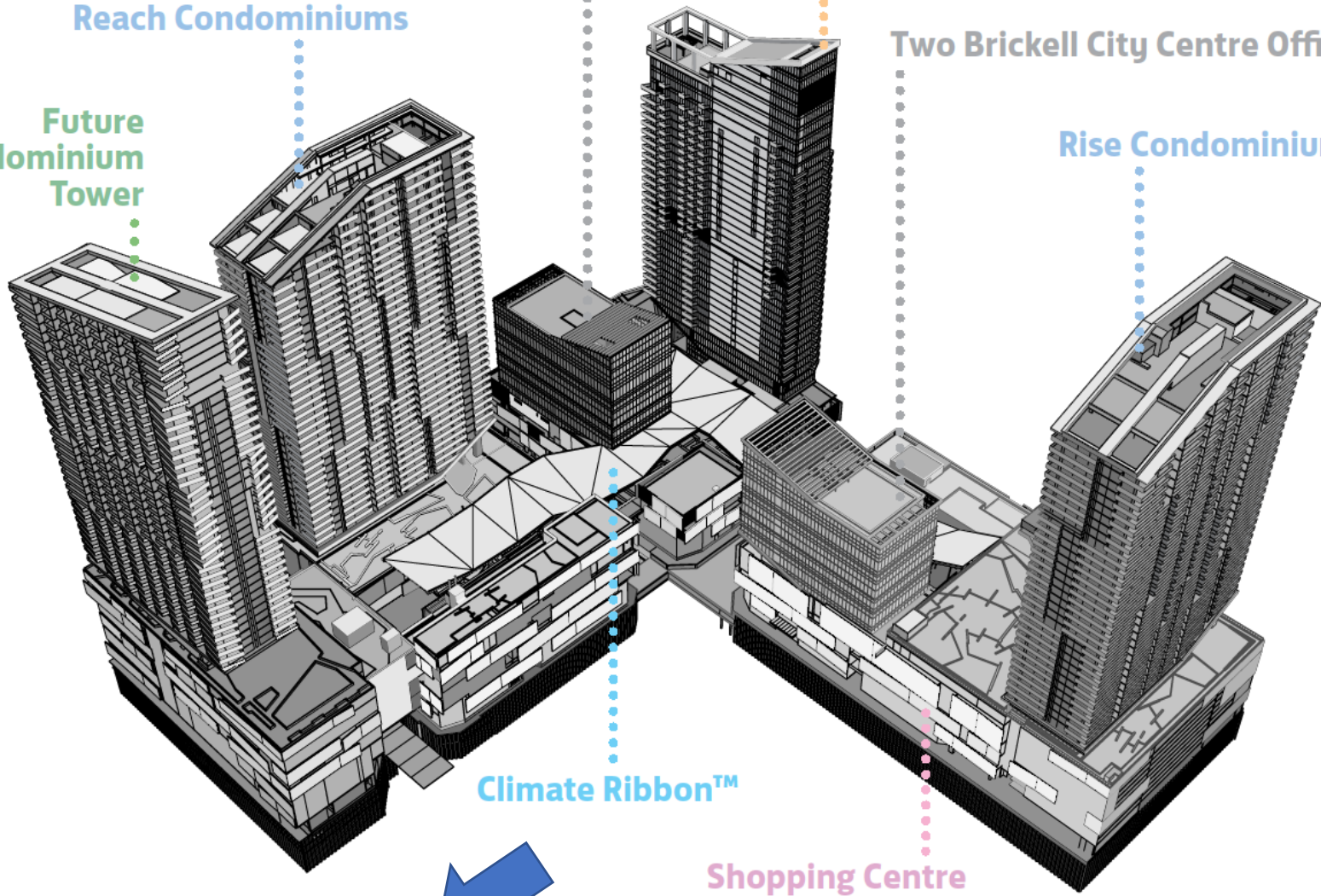
EAST, Miami

Reach Condominiums

Two Brickell City Centre Office

Future Condominium Tower

Rise Condominiums



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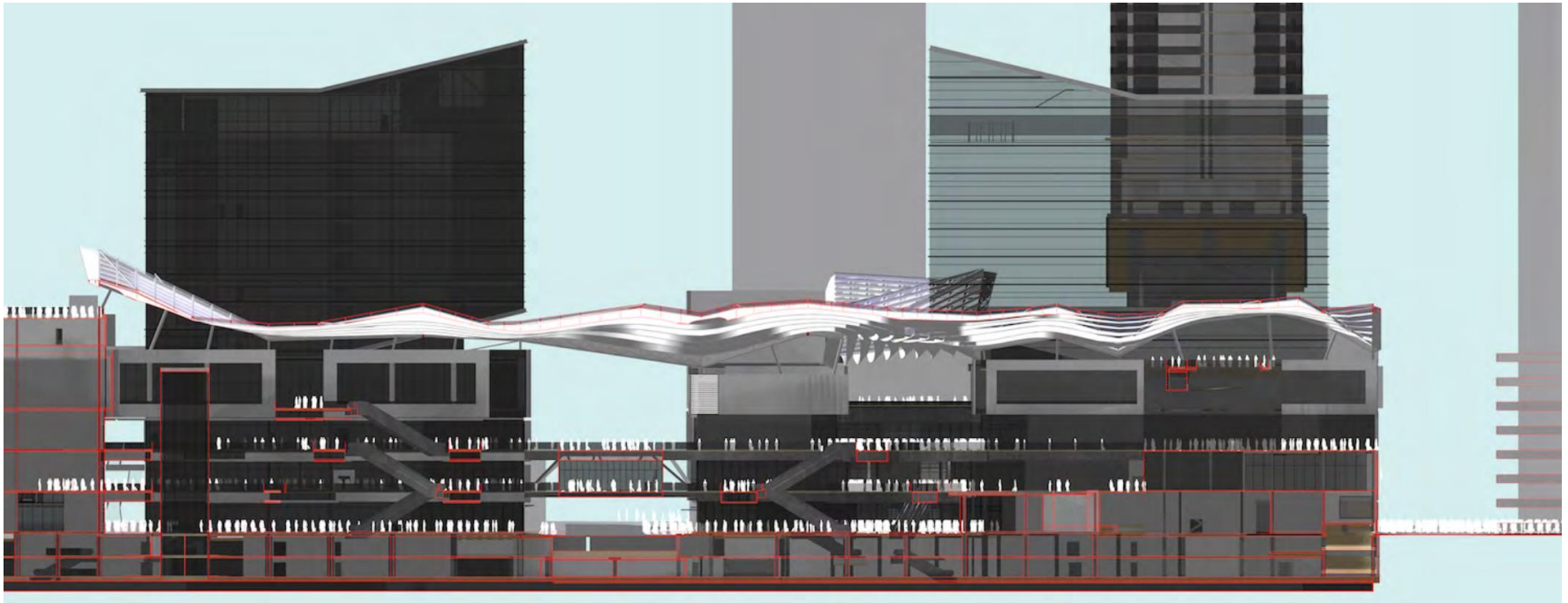
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Brickell City Centre in Miami



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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



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Climate Ribbon™



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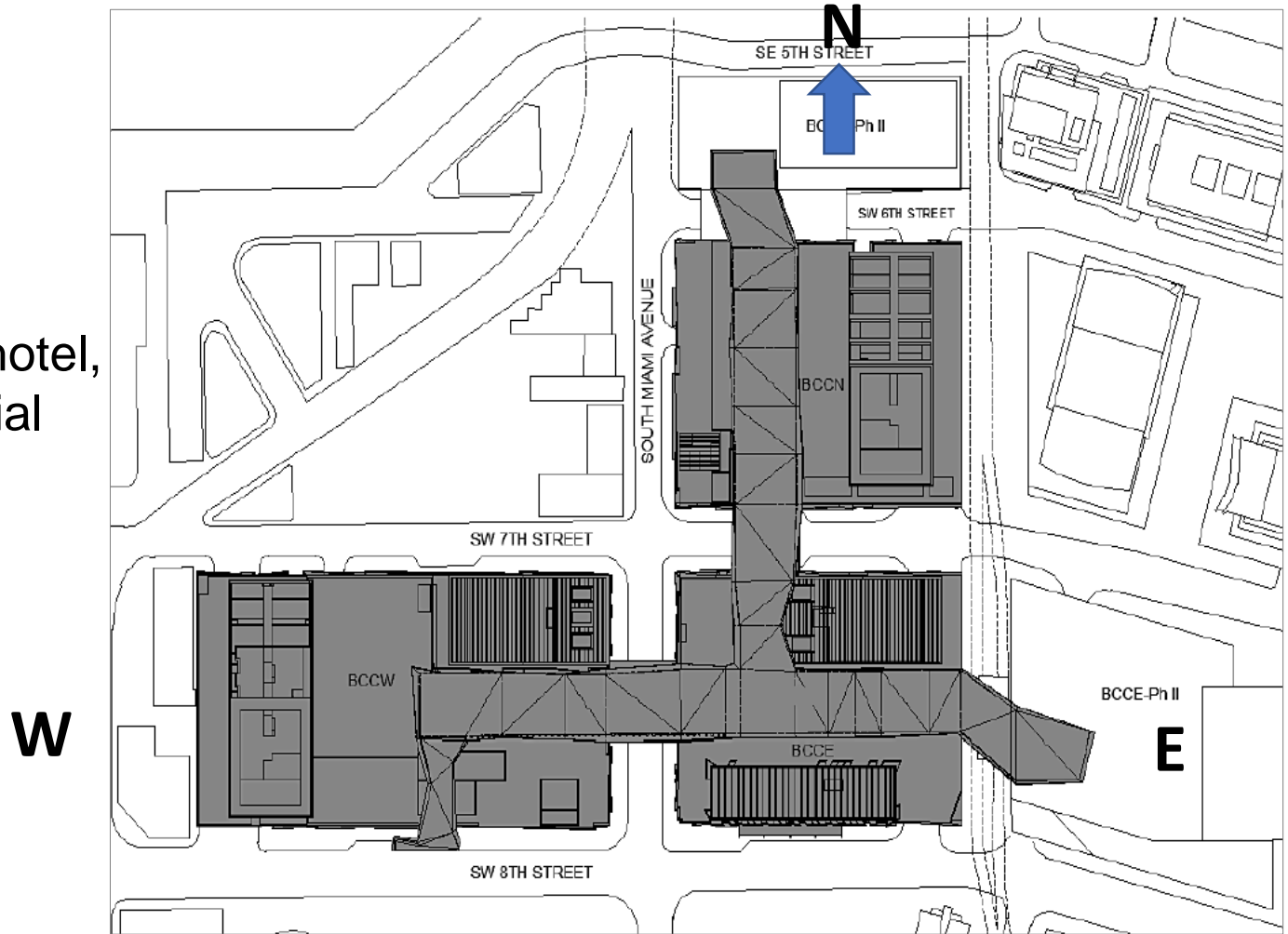
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Climate Ribbon™

The unique sustainable architectural feature

100,000ft² Climate Ribbon™ ties the hotel, office and residential towers together~

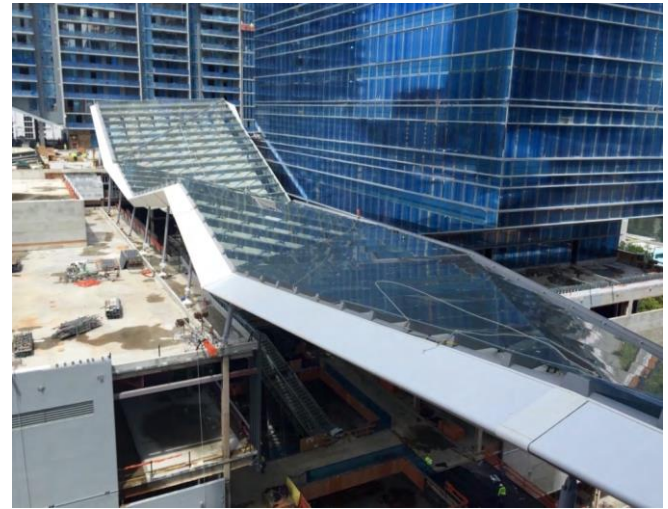
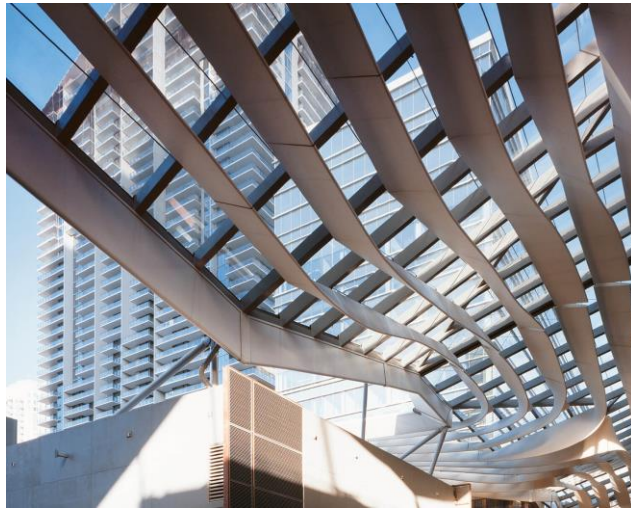
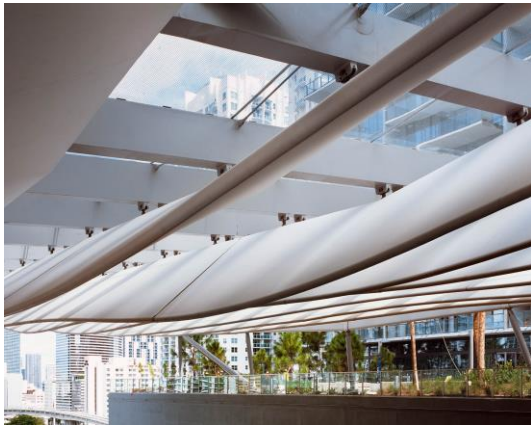
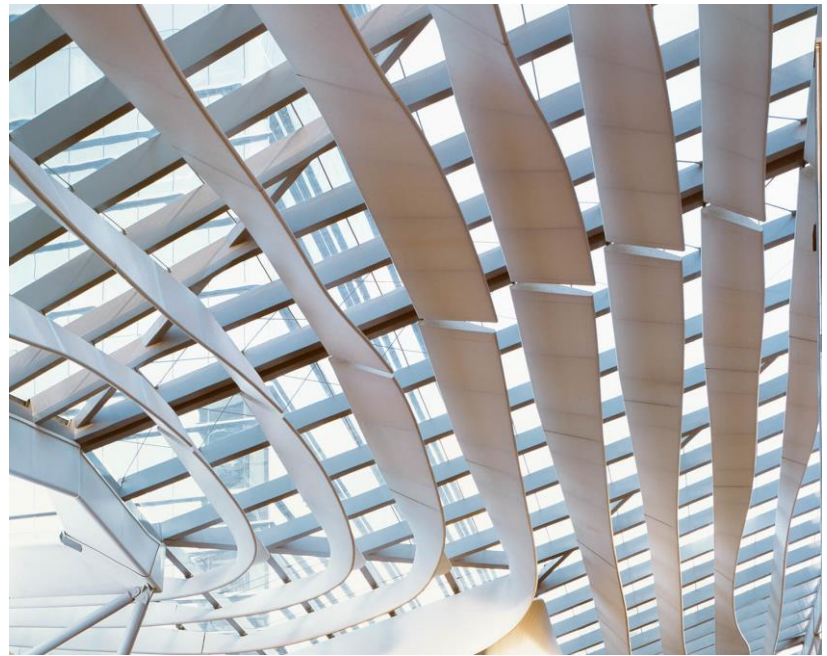
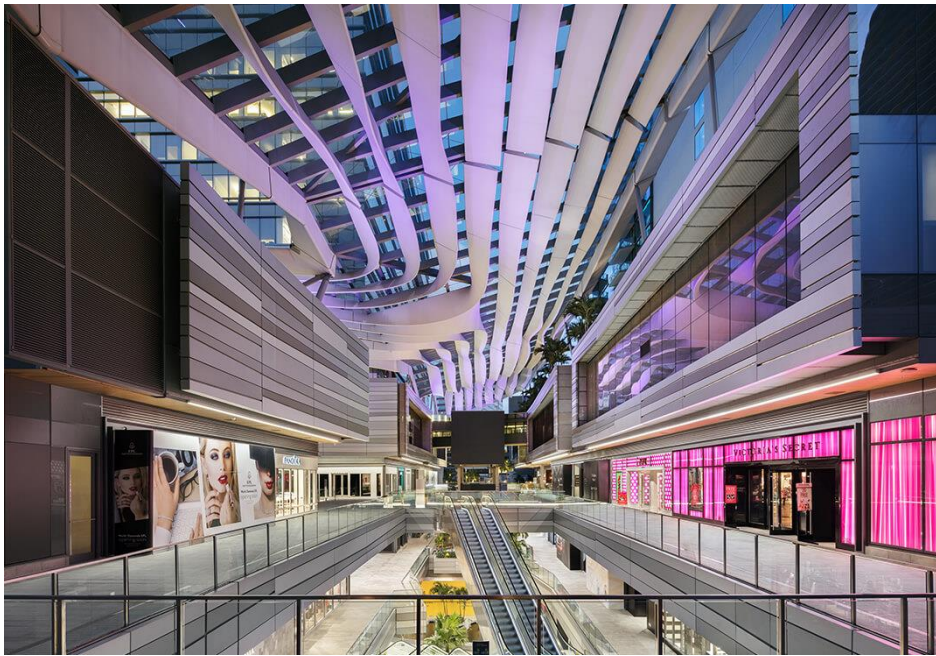


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Organisers:



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3 Passive Approaches



A breeze path



A sun shade



A rainwater collector



Organisers:



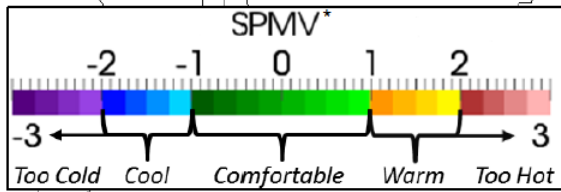
International Co-owners:



≡ A Breeze Path

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

SUMMER



morning



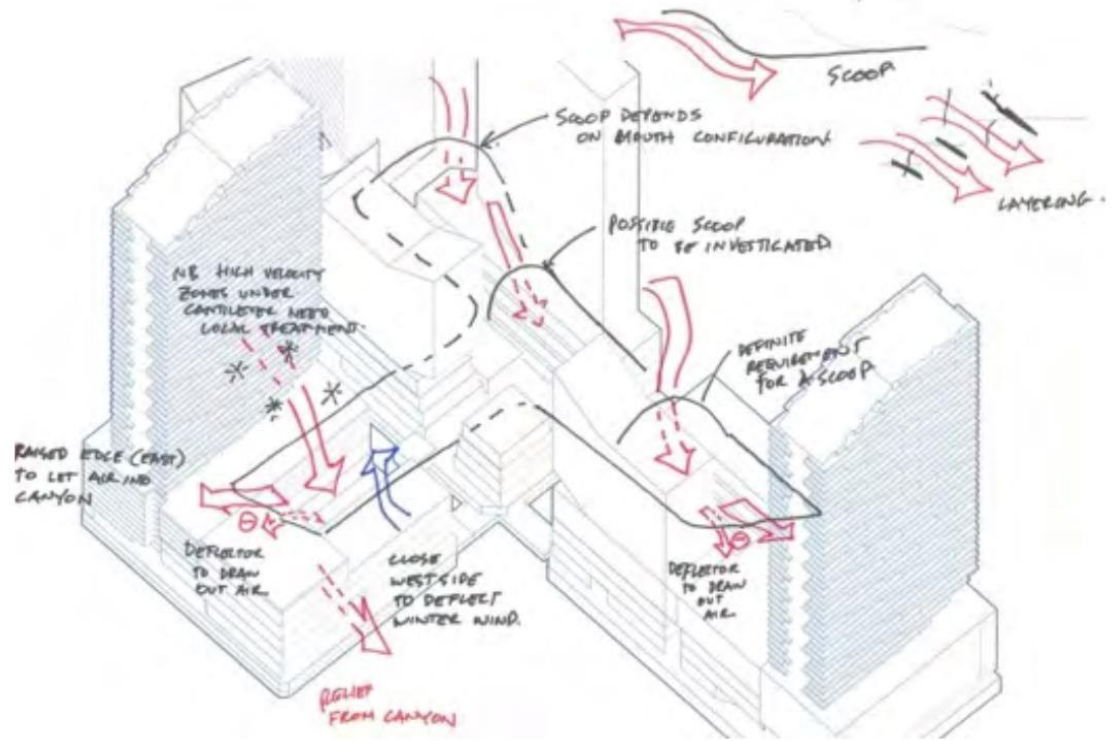
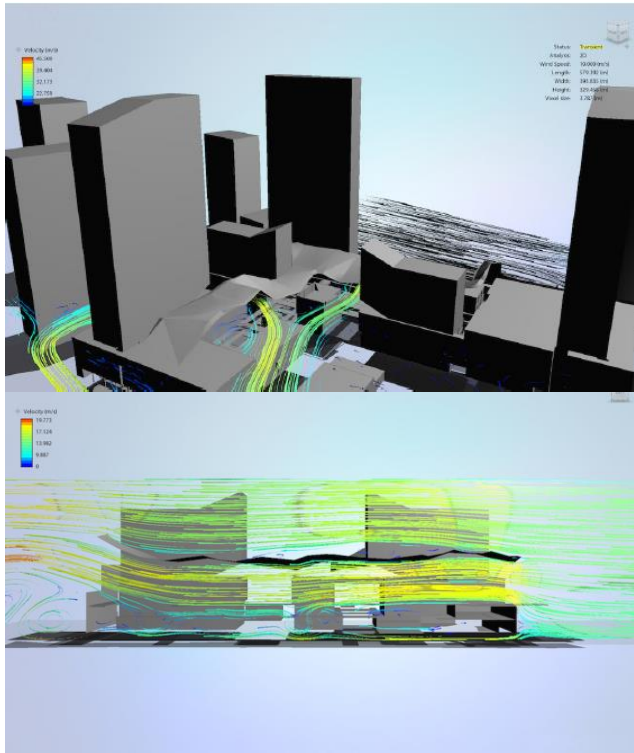
afternoon

noon

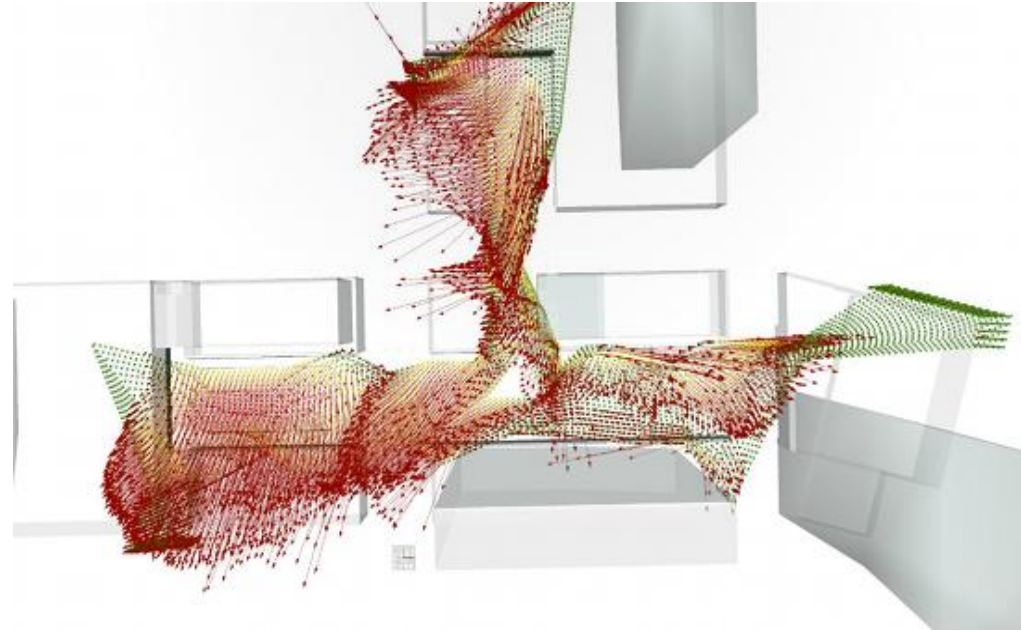
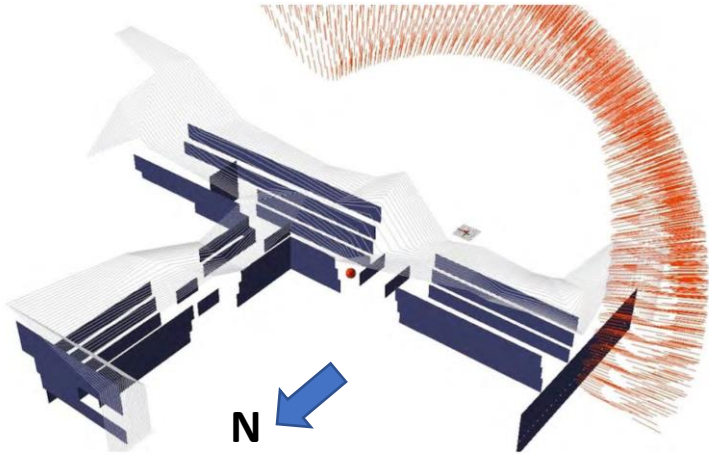


≈ A Breeze Path

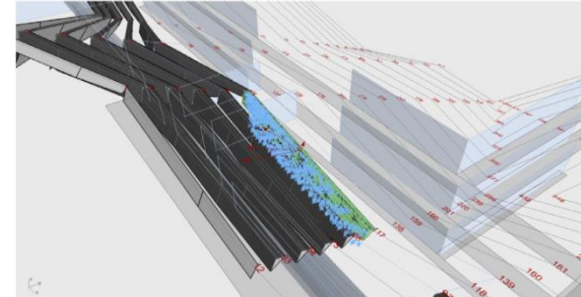
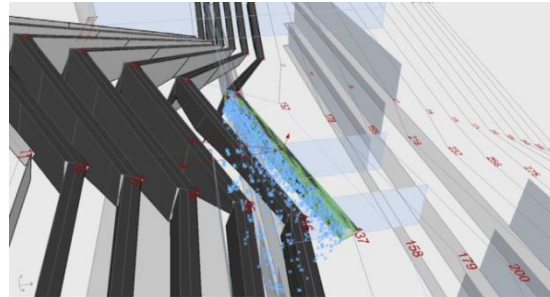
CFD simulation results indicate air flow will be maintained at approximately 3 to 4.6m/s at all times throughout the centre. The thermal conditions at approximately 90% of the locations studied in the public realm under the Climate Ribbon™ will be better than outdoor ambient levels



A Sun Shade

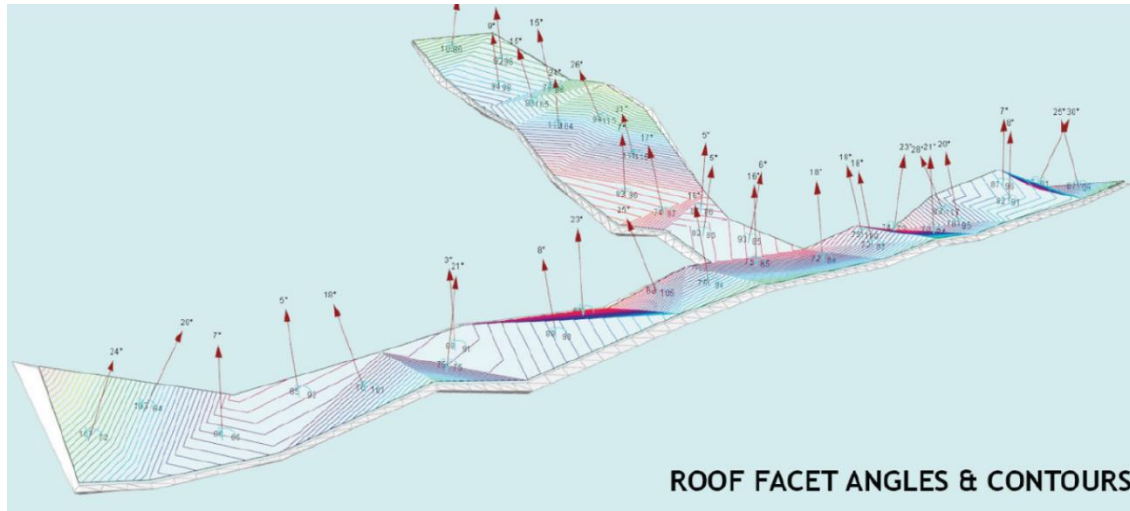


Solar exposure at each location on an hourly basis has been predicted by modeling.

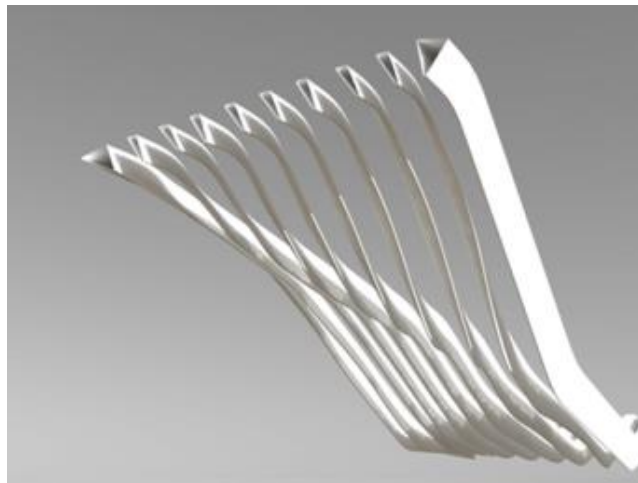


Optimized design is achieved with longitudinal blades perpendicular to the sun angles.

A Rainwater Collector



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

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.



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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



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