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

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Background
Brickell City Centre in Miami
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
Brickell City Centre in Miami
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™
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The unique sustainable architectural feature

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

- A breeze path
- A sun shade
- A rainwater collector
A Breeze Path

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