

Advancing Net Zero Showcase in Subtropical High-Rise Commercial Building

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Abstract : Taikoo Green Ribbon is the winning scheme of International Advancing Net Zero ANZ Ideas Competition 2021 and shortlisted as a finalist of top Architectural Award "AJ100 Sustainability Initiative of the Year, 2022, demonstrating city's aspirations to reach carbon neutrality by 2050. The project showcases total design solutions to blend technology and nature to create a futuristic workplace achieving net zero within a decade. The net zero building design featured with extremely low embodied carbon emission (<250 kgCO₂/sqm), significant surplus in renewable energy generation (130% of energy consumption) and various carbon capture technology. The project leverages aesthetics, user-experience, sustainability, and technology to develop over 40 design features. Utilizing AI-controlled Smart Envelope system, the possibility of naturally ventilation was maximized to adjust the microclimate to foster behavioural change. The design principle - healthy and collaborative working environment is realized with a landscaped sky-track with kinetic energy pads, natural ventilated open space with edible plants across floors, and 500-seat open-space rooftop theatre to reshape and redefine the new generation of workplaces.

Keywords : NetZero, zero carbon, green, sustainability

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