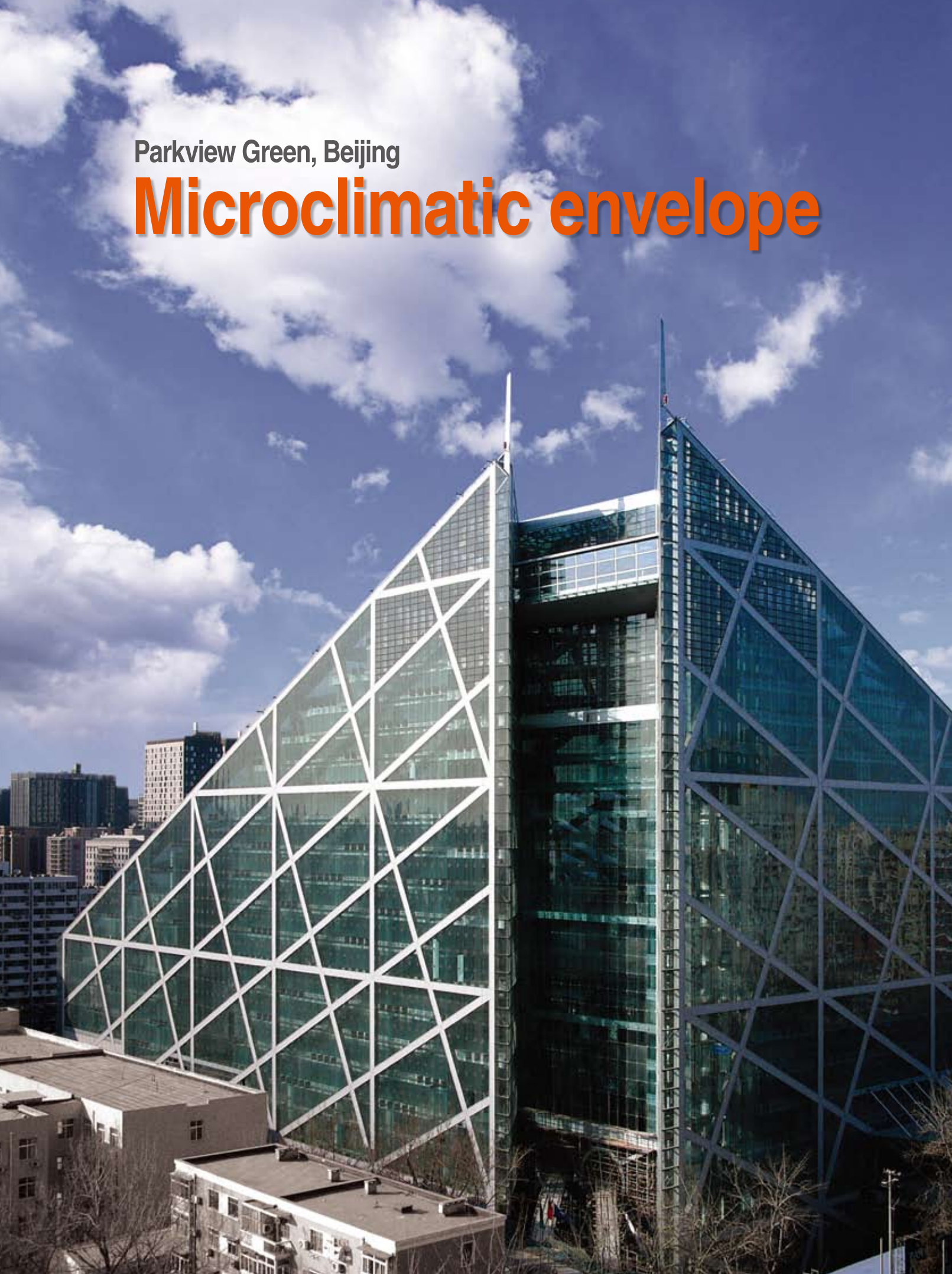


Parkview Green, Beijing

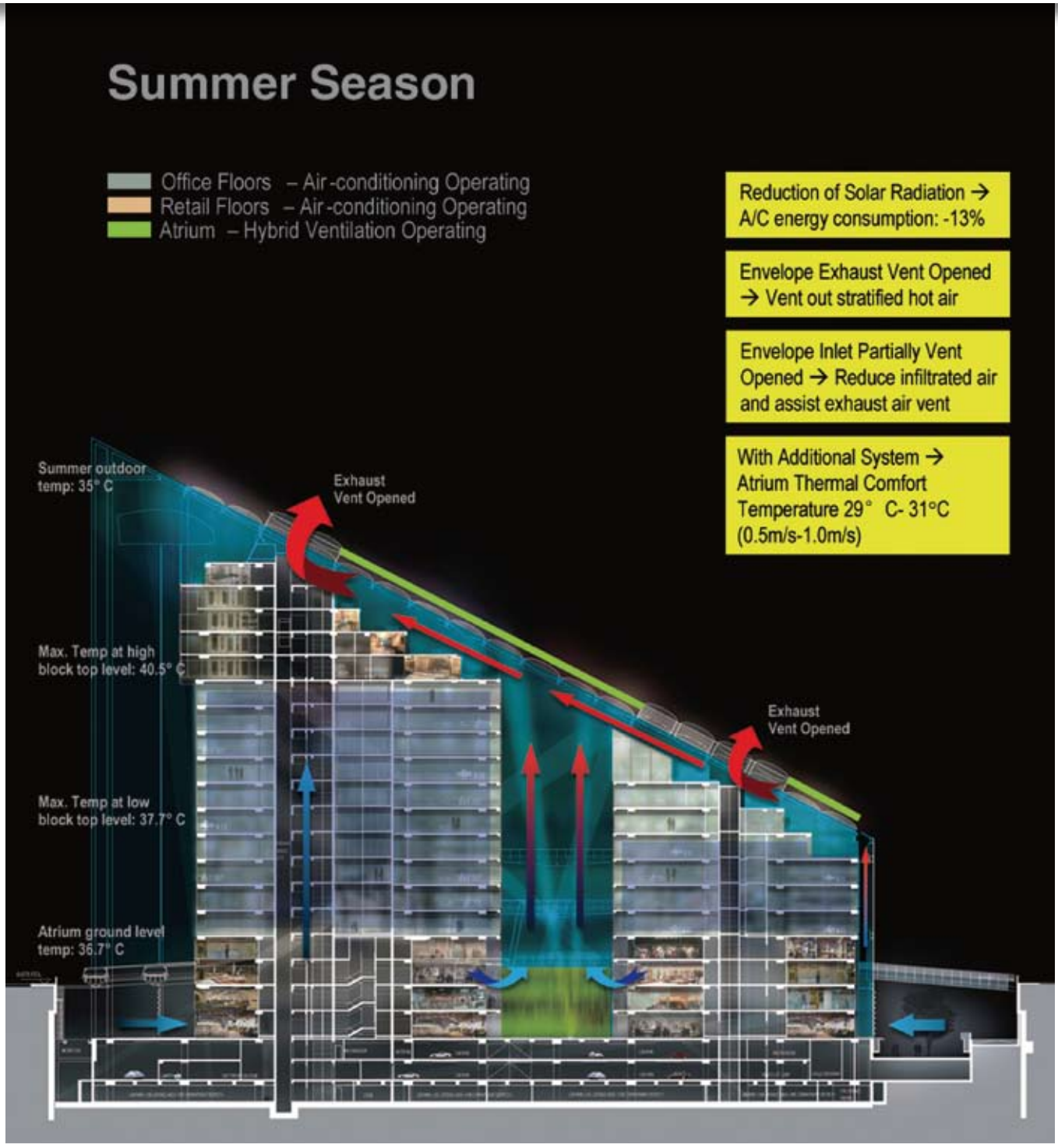
Microclimatic envelope

Parkview Green FangCaoDi, designed by Integrated Design Associates, is named the Best Green Building in Asia by the MIPIM Award – the first mainland Chinese project to win the award in this category.

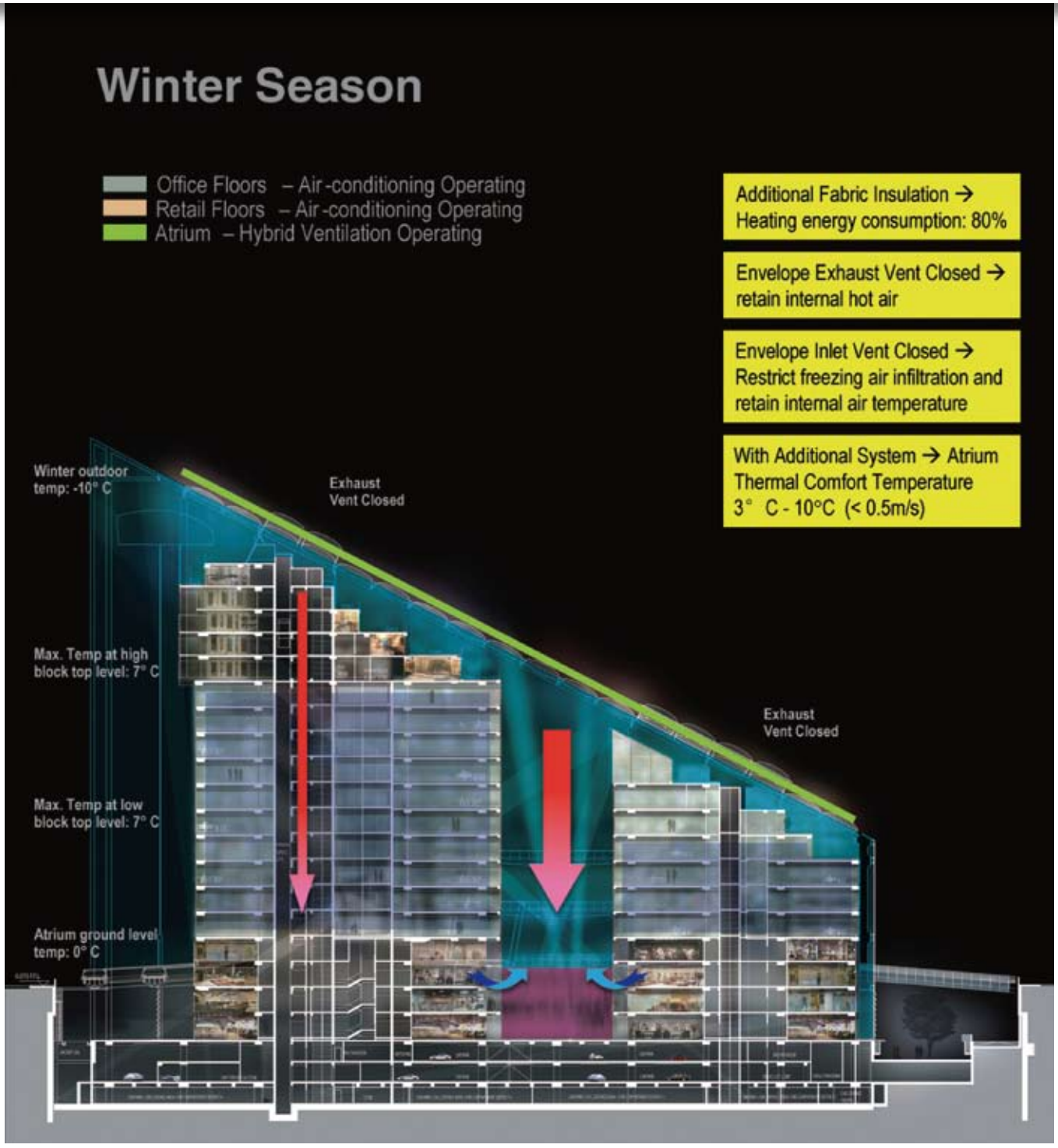
Form follows function is the best summary of the Parkview Green project in Beijing. Conceptualized in 2001, the project's absolute respect to Right to Light created an architectural form that becomes its most distinctive signature and the driving force behind the environmentally sustainable design. Parkview Green comprises of 4 buildings that include a retail mall, commercial office space, and a luxury boutique hotel. All buildings are designed with atria spaces, sky-gardens, terraces, and link bridges to fit within the pyramidal envelope. 24 m separates the 4 multi-storey buildings to optimize natural light in the atrium. Offices are planned with maximum 15 m depth from façade to core and a clear floor to ceiling height of 2.9 m for optimal daylight to reduce energy for lighting.

Microclimatic envelope

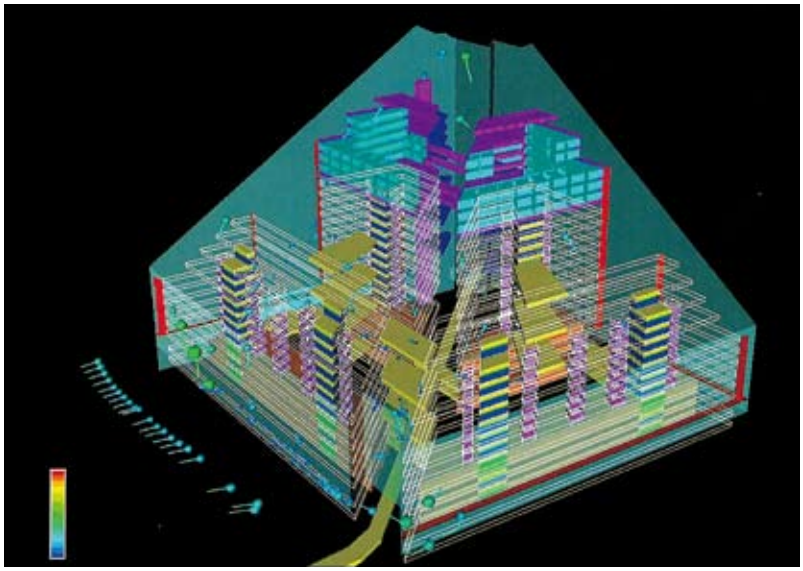
The outer microclimatic envelope is made up of a layer of single glazing for walls and



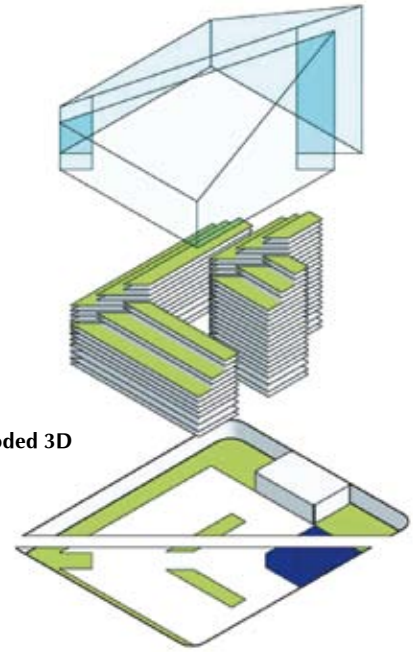
Microclimatic envelope design



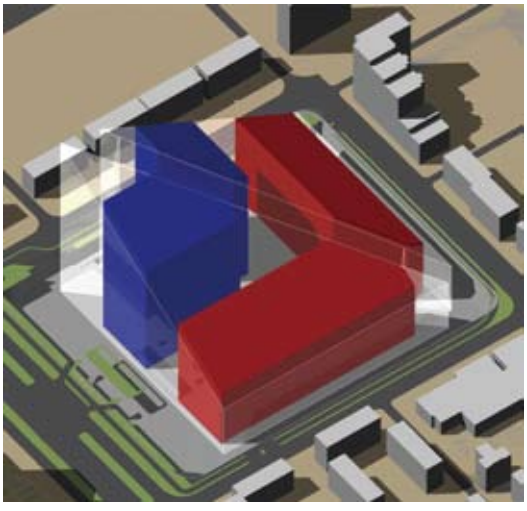
air-filled Ethylene Tetrafluoroethylene (ETFE) cushions for roof, all supported by a steel structure that wraps the entire development. As a weather protection layer it controls the microclimate of the volume within by way of thermal insulation formed in the airspace between the outer skin and the buildings, and as a passive breathing apparatus it regulates the enclosed environment in response to the extreme climates of Beijing. The pyramidal form lends itself to natural air movement by heat stack effect. Fresh air is drawn in at the base of the building as heated air rises through the atrium and into the roof void. The ETFE roof is set at a constant 3 m away from the inner buildings to maintain air passage. Cool fresh air or warm air heated by solar radiation is being fed into the internal areas of the 4 buildings as required to regulate the temperature inside the office



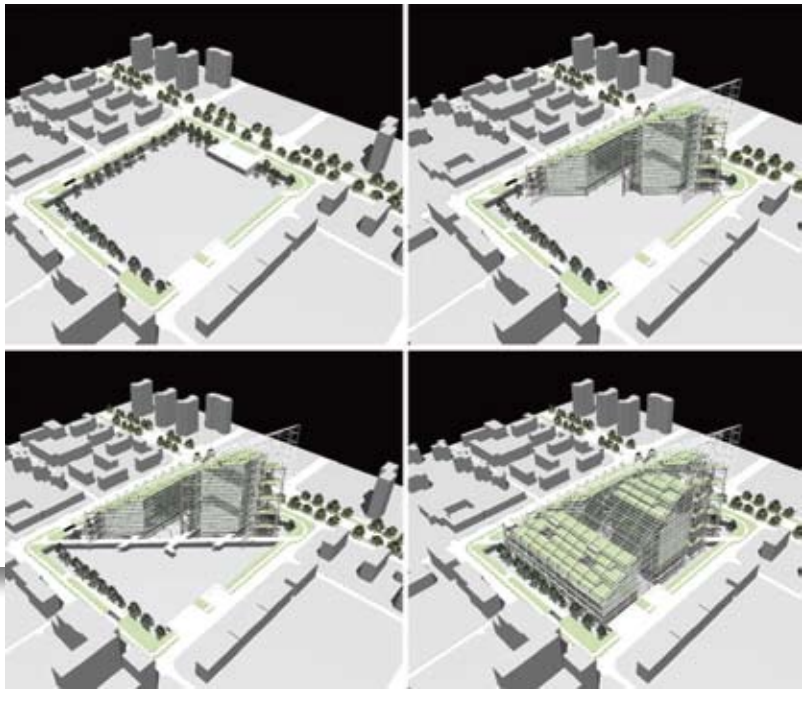
Ever more complex computer models were developed to study air-flow and temperature variation in and around the internal buildings and their floors.



Exploded 3D



Volumetric



space. Operable windows and ETFE cushions are built into the microclimatic envelope for natural ventilation. These operable vents are computer-controlled and are designed to work under different prevailing wind and environmental conditions.

Energy saving

The microclimatic envelope maintains the atrium several degrees warmer in winter and cooler in summer. Although air conditioning will still be required, loadings will be greatly reduced and, for much of the year, natural ventilation alone will be more than sufficient to maintain comfortable conditions within all areas. At these times, supplementary heating and cooling will be supplied via radiant ceiling by 'closed circuit' water systems which, like all the building's HVAC equipment, will be fitted with the latest energy-sufficient recovery systems. The design keeps energy and water consumption low, saving 63 per cent of energy in moderate seasons and up to 80 per cent in winter.

Fast Facts

building type	commercial, hotel and office development
total GFA	200,000 square metres
building height	79 metres

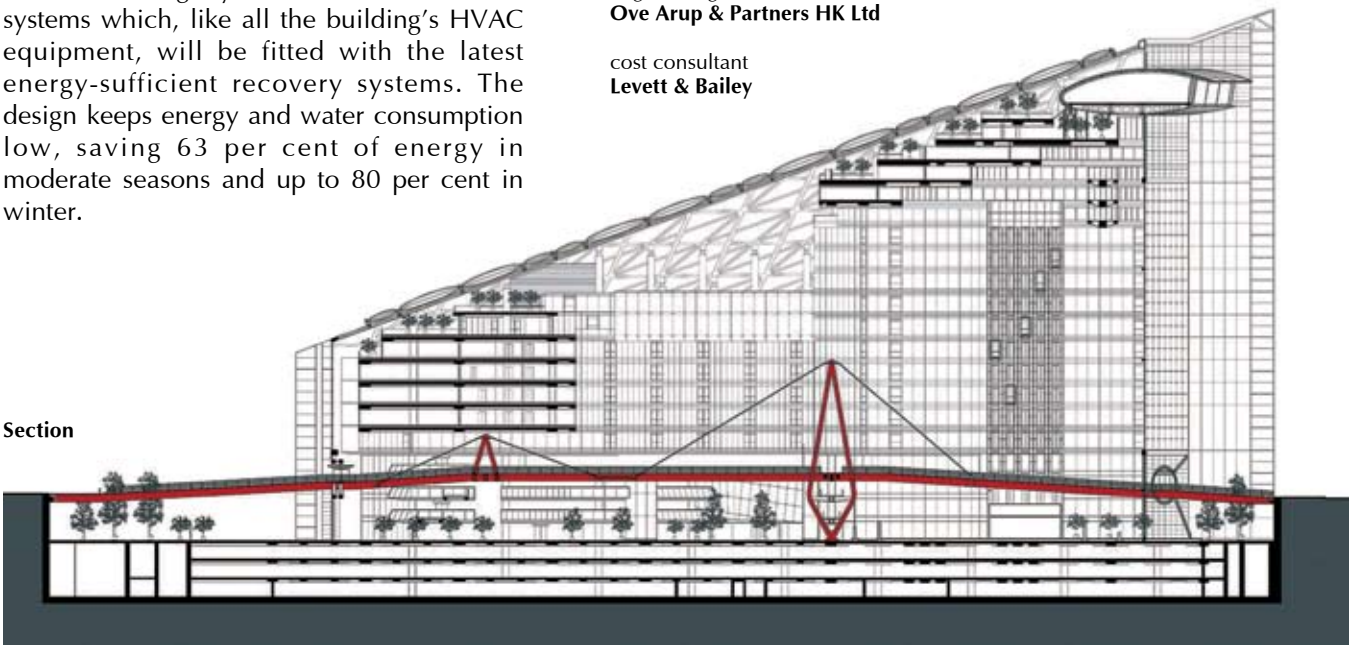
developers
Chyau Fwu Properties Ltd/Hong Kong Parkview Group

project management
Jandun Construction Co Ltd

lead architect & design consultant
Integrated Design Associates Ltd

engineering consultant
Ove Arup & Partners HK Ltd

cost consultant
Levett & Bailey



Section