

Beijing Linked Hybrid Peking (CN)

Client:

Modern Group, Beijing

Completion / Occupation: 2008

Building area: 210.000 m²

Architect:

Steven Holl Architects, New York

HVAC:

Cosentini Associates, Consulting Engineers, New York

Climate Engineering:

Transsolar Energietechnik GmbH

Project manager: Stefan Holst

Brief:

The aspiration of the developer Modern Group is for an ultra-modern expression of 21st Century ecological urban living, in this 160,000 sq. m. project. To this end, it will be one of the world's largest geothermal ground source heat pump projects, with 660 wells to provide a total 5000 kW cooling and heating capacity. Furthermore, a gray water recycling system of 320m³/day will supply toilet flushing and landscape/pond usage to drastically reduce fresh water usage.

Current development in Beijing is almost entirely free standing "object buildings". Linked Hybrid's "city within a city" envisions urban space as the central aim—as well as all the activities and programs that can support the daily life of over 2500 inhabitants: café's, delis, laundry, dry cleaners, florists etc. The eight towers are linked at the twentieth floor by a ring of public programs including a health club, café, art gallery and exhibition space. These programs encourage pedestrian circulation and cut down on automobile use.

Concept:

Highly insulated opaque facade elements are combined with insulated double glazing units and external roller screen systems using special shaped horizontal bar structures to efficiently block sunlight while being visually very transparent and highly wind resistant. Activating the buildings thermal mass via slab integrated radiant piping systems ensures thermal comfort within the apartments and efficiently uses free cooling potential of the geothermal energy system that uses over 600 borehole heat exchangers for direct cooling or heat pump heating and cooling. With a central low velocity displacement ventilation system integrated into the raised floors and serving every room high air quality and control of air temperature and humidity are guaranteed while integrated heat recovery systems minimize ventilation heat losses in winter. Central purification conserves water by gray water use for toilet flushing and irrigation.

