

Beijing Olympic Village

The Olympic Village, located in the northwest corner of the Olympic Park, adjacent to the Olympic Forest Park, was developed to house athletes and officials at the 2008 Beijing Games. It was a collaboration between the U.S. Department of Energy (DOE) and the Beijing Municipal Science and Technology Commission (BSTC). Residential units were sold after the Games as high-end condos. A micro-energy (zero-energy) building within the Olympic Village was also built. The building served as an athlete's reception area during the Games and a kindergarten for the Olympic Village after the games. The developer's goals were for a project that met the strong environmental commitment of the Chinese government and the Games, while increasing the project's market appeal at a cost that assured a reasonable profit margin.

GREEN FEATURES AND SUSTAINABLE TECHNOLOGIES

ENERGY EFFICIENCY

Heating, cooling, and domestic hot water is provided by a wastewater heat pump with fan-coil terminals.

BUILDING ORIENTATION

Residential units are oriented for southern exposure and have enclosed sun-spaces.

HEAT EXCHANGE SYSTEM

The system taps energy from the sun and recycled water from the Qinghe sewage treatment plant and upgrades it through heat pump devices for winter heating and summer cooling purposes.

GEOTHERMAL ENERGY

An innovative heating, ventilating, and cooling (HVAC) system combines ground-source heat pumps, radiant floors, desiccant cooling with active solar regeneration, and a seasonal thermal-storage system.

EXTENSIVE USE OF SOLAR ENERGY

Solar heating, solar hot water, solar thermoelectric cogeneration, and solar energy collecting tubes installed on rooftop



gardens. SolarWall, a solar thermal device that preheats ventilation air, is ducted into the building's conventional HVAC systems. The building uses photovoltaics (PV) for outdoor lighting. There is also a SolarWall unit combined with PV panels to produce both preheated air and solar electricity at the same time. Drawing the heated air off the solar modules makes them more efficient.

PROJECT DETAILS

LOCATION

Beijing

NAME

Olympic Village

DEVELOPER

Guo Ao Investment and Development Company

PROJECT MANAGER

Keppel Land International Ltd.

ARCHITECTURAL DESIGN

Beijing Tianhong Yunfang Architecture Group

SIZE

275,500 m² (total site area)

111,853 m² (total green area)

413,250 m² (above-ground floor area)

142,410 m² (below-ground floor area; garage space for 2,800 vehicles)

380,000 m² (permanent residential buildings' floor area)

3,000 m² (micro-energy building)

TYPE

Residential

BUILDING DETAILS

42 residential buildings, 20 of nine stories and 22 of six stories

Small 3-story micro-energy building

RATINGS

Awarded the first LEED-ND (Neighborhood Development) Gold rating in China

SOLID WASTE RECYCLING

An integrated waste recycling facility where residents can separate different kinds of waste encourages the recycling of solid waste. Recycling containers are positioned throughout the complex.

POWER-SAVING LIGHTING

The underground parking garages feature T-8 fluorescents with electronic ballasts and automatic controls.

WATER EFFICIENCY

Water conservation measures include storing rainwater in an underground well to be used for irrigation, road cleaning, etc., and managing storm water through the ample use of permeable surfacing.

Waste water is also treated through a water ecological system, providing 200 tons of daily recycled water which is used for landscape watering in the Village.

OTHER NOTABLE GREEN FEATURES

- Building roofs planted with vegetation
- Extensive pedestrian and bicycle trails
- Native plants make up 90% of the Village's landscaping

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