

Ju Fu Yuan Residential Apartment

Picture



Fig.1 Appearance of the project

Basic Information

Location:	He Xi Xin Qu, Nanjing, Jiang Su Province
Climate:	South China, sea
Project brief:	The project is a mixed functional residential district, with 831 dwellings, one kindergarten, one primary school, and supermarket, etc.
Client:	Nanjing Yin Cheng Real Estate Development co., Ltd
Architect:	China Institute of Building Standard Design & Research
Timetable:	Start Project: 2002 End date project: November 2003
Area:	0.15 million m ²
Cost:	RMB 780/m ² for multi-storey and 1000/m ² for high-rise building

Design features

Bioclimatic

features:	Proper building shape coefficient and ratio between window and wall (0.28-0.32 for south, 0.21-0.22 for north, and 0.05-0.11 for east and west) Big size window in South direction for passive heating in winter
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Materials/

Construction: Multi-aperture brick wall for multi-storey buildings; hollow brick wall for high-rise buildings

Technical

features: Low noise frequency-conversion air conditioning system
District gas heating system
Solar water heating system
Rain water collection system, reclaimed water system
Reversed "Owens corning" insulation system for roof

U-values: $k=0.83 \text{ w/m}^2\text{k}$ for walls
 $k=0.7 \text{ w/m}^2\text{k}$ for roof
 $k=2.6 \text{ w/m}^2\text{k}$ for low-E glazing

Project Details

Context and site: The project is located adjacent to Chang Jiang River, which is the largest river in China. Thus the project has the characteristics in plainness topography, beautiful site and convenient traffic.

Function & form: Multi-storey and high-rise; residential apartment

Structural system: Frame structure and shearing force walls

Energy efficiency control:

Thermal insulation
of building envelope:

loper: Exterior façade:

Multi-aperture brick wall for multi-storey buildings with grit slurry exterior insulation layer;

Hollow brick wall for high-rise buildings with "Owens corning" extrusion sheet to be the insulation layer

Window:

Thermal break aluminum frame double glazing;

Big size window in south direction for passive heating in winter

Roof:

Combination of plain and slope roof;

Reversed "Owens corning" insulation system;

Double insulation layer for plain roof

Space heating
cooling, ventilation, air conditioning:

Low noise frequency-conversion air conditioning system;
District gas heating system

Renewable Energy use:

Solar water heating system with electrical aid system for hot water production

Green site approach:

Water system: Waste water is used to irrigate plant, wash cars, etc;

Reclaimed water system;

Rain water reuse system (annual reuse rate 39.6%; save RMB 0.3 million per year) (Fig.2)



Fig.2 Artificial lake in the project