

Beijing National Aquatics Centre

Nicknamed the Water Cube, the imposing \$140-million rectangular box, clad in a honeycomb of transparent cushions, will host a total of 42 gold-medal events in swimming and diving during the Games

Capacity: 6,000 permanent, 11,000 temporary

Venue designed by Australian architects **PTW**

Roof: Capable of collecting around 10,500 cubic metres of rainwater a year

WATER CUBE
Height: 31m
Length: 177m
Width: 177m

OLYMPIC GREEN

Olympic Village

1km
0.6 miles

Bird's Nest

Training pool

Olympic pool

Recreational pools

Bar restaurant

Grandstands

Diving platforms

Main entrance

STRUCTURAL DESIGN

Built from polyhedron units based on shape of soap bubbles – most effective sub-division of 3D space as demonstrated by physicists **Denis Weaire** and **Robert Phelan**

14-sided

12-sided

Two 12-sided and six 14-sided polyhedra form **Weaire-Phelan Foam unit**

Foam unit repeated indefinitely

GREENHOUSE EFFECT

Skin: Made of 100,000 square metres of Teflon-like material **ETFE** (Ethylene Tetrafluoroethylene) formed into 3,000 cushions

Energy absorption: ETFE cushions allow high levels of natural light into building – solar energy used to heat pools and interior area, reducing energy costs by 30%

Airflow: Fresh air entering through external vents regulates heat in summer

Cushion: Inflated by computer-controlled power pump and patterned with "frit" (dot) for shading – ensures heat loads regulated all year

LED lights inside cushions light up at night