ingenhoven + architectus

1 bligh, sydney • 6 star solution for high-rises

The consideration of principles of sustainability, with regard to energy, ecology and social needs, has led to a truly next generation building that achieved the highest 6 Star Green Star rating in Australia and a 42% CO2 reduction.

Double Skin Façade

The double-skin facade, with its wind and weather protected cavity, allows for the use of an external sun blind system on the tower.
This system reduces heat gains and consequently the energy required for cooling by 15%.

hot air

chilled beam

double glazed unit

venetian blinds provide full sun protection while maintaining the view

unobstructed view

fresh air

Fresh Air Intake

Air intake/ exhaust profiles together with blinds have been designed to optimise air flow to avoid overheating within the cavity.

Fresh Air-Stream

The south facing atrium serves as a cool air pond for the entire building. Operable glass louvres allow controlled natural air movement within the atrium and throughout the balcony workplaces.

Sustainable Materials

1 Bligh is the next generation in high performing sustainable office space.

90% *steel with recycled content*

90% of the used steel has a recycled content greater than 50%.

41% *industrial waste by-products*

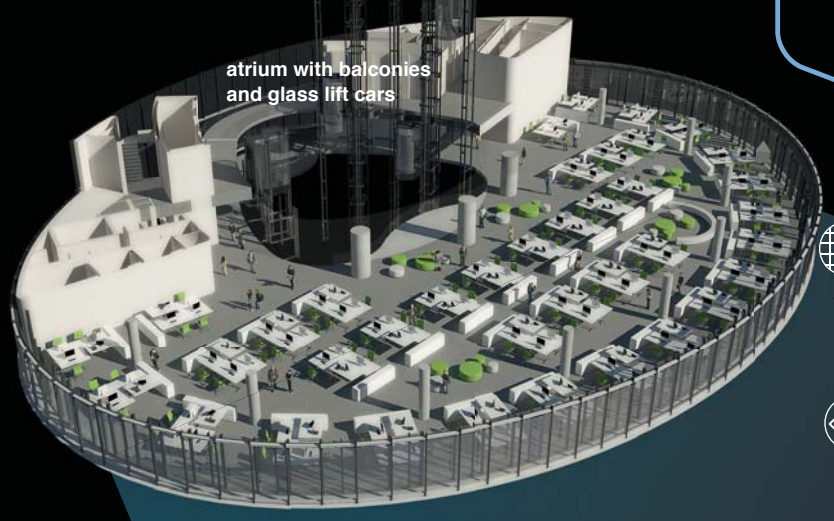
~41% of all cement has been replaced with industrial waste by-products.

20% *recycled*

20% of all aggregate used in concrete is recycled.

Community

The floor plans have been designed around principles of communication. Balcony workplaces enhance vertical communication and glass lifts within the atrium provide tenants and visitors with an understanding of what occurs on other floors.



75,000 litres of treated water to cooling towers daily

25,000 litres of treated water piped to 28 levels daily

25,000 litres returned to blackwater treatment

PV cells generate electricity

cooling towers

naturally ventilated atrium

transparent plant room

transfer floor with terrace deck for meetings

naturally ventilated balcony workspaces

green wall

cafe

public ground floor

filter plant

water from Bondi Main Sewer

Solar Cooling

Solar absorber generated hot water is used to power the heatpump through which chilled water is produced.

Water AC

Chilled beams, partially supplied by the solar cooling system, reduce energy consumption and further minimise system reaction times.

Trigeneration Efficiency

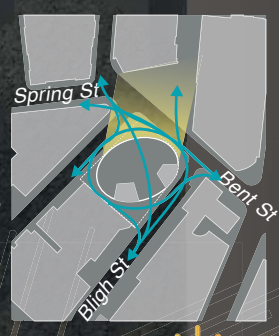
Efficiency rate for electricity usage sits at 90% compared to 65% in the case of using the conventional power grid.

Eliptical Form

Compact layout of the elliptical form provides the same amount of floor space as a rectangle with 12% less façade, therefore reducing energy demands for cooling.

Public Space

The building offers short cuts around and through the atrium. Farrer Place is enlarged through the public steps. The form is a response to the site where two urban grids meet.



summer

winter

Childcare

Childcare allows young working couples to reduce their commute through maintaining proximity to their children.

Intelligent Angle

The height of the ground floor has been optimised to shade the public steps in summer and to receive sunlight in winter.

Bicycle Parking

End of Trip Facilities

Showers and lockers for cyclists, promoting carbon neutral travel.

Efficient Construction

The position of columns 6m from the facade reduces forces and therefore reduces beam depths for less material use overall.

Clear Harbour View

100% of the office space faces the harbour, allowing views of the water and the harbour bridge.

Black Water Treatment

In total, 100,000 litres of water is recycled daily. Sewer mining is further employed to optimise efficiency and to use the capacity of the black water plant, by taking and recycling additional waste water from the city sewer.