

Santos Place 6 Star Green Building

In 2007 the Queensland Government announced that \$2 billion of government infrastructure and private development would be channelled into the North Quarter precinct of Brisbane's CBD. This area would become an architectural link between the city's commercial and cultural centres. One of the key buildings in North Quarter is Santos Place, also known as the Northbridge CBD development.

This \$270 million project comprises 33,000m² of premium office space over 36 floors. In addition, it is one of the first buildings in Australia to be awarded the highest possible 6 star Green Star – Office Design and As-Built v2 rating by the Green Building Council of Australia. Santos Place features many initiatives that will reduce the ongoing carbon footprint of the building by up to 40% when compared to traditionally designed building of a similar size.

One of the key elements of Santos Place is the high performance façade which includes an automated solar shading package. At the heart of this system is Somfy's **animeo** IB+ Premium Façade Management System controlling over 1,200 Somfy motors. These motors are integral to the blinds fitted to the façade, controlling glare and reducing the solar heat gain through the glazing.

The Somfy **animeo** IB+ package is an independent, off-the-shelf control solution that constantly monitors the environmental conditions to ensure that the blinds are always in the correct position. Additionally it features a built in sun-tracking algorithm and timers that can easily be configured during commissioning to manage the reaction of the façade at different times during the day, and on different days of the week, reflecting occupancy levels within the building. The **animeo** IB+ system can also receive inputs from the

building's management and HVAC systems as well as giving users overriding control of the blinds in their local area. This local control by occupants is one of the key items of the Green Star Office Design and As-Built v2 IEQ-5 Glare Control credit.



Project Details

Location

Brisbane, Australia

Type of Building

Commercial Office
33,000m²

Investor

Neilsen Properties

Architect

Donovan Hill

Builder

Hutchinson Builders

End-products

1200 Vertilux Motorised Internal Roller
Blinds powered by Somfy

Somfy Solution

animeo IB+ Premium
LT50 motors

Project Manager

KWA Blinds

somfy.com.au
somfy.co.nz
somfy-architecture.com

SOMFY Pty. Limited

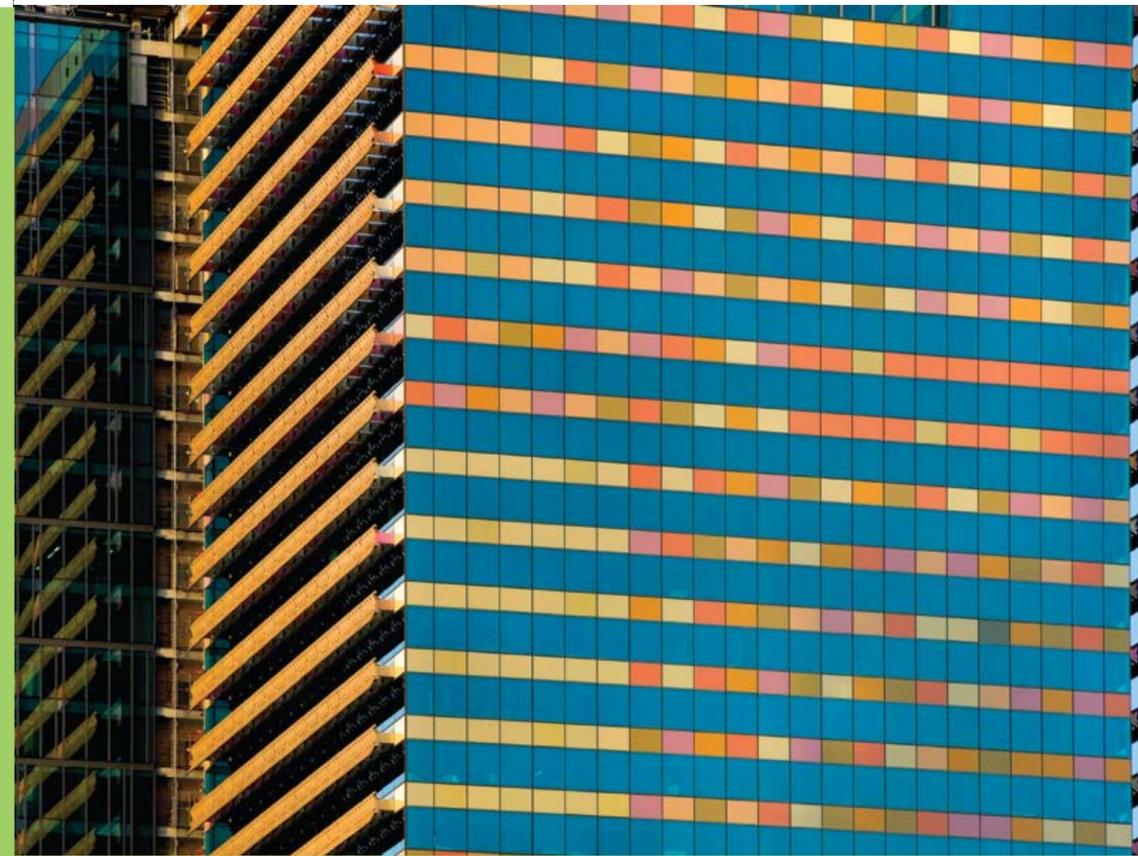
Australia

Toll free 1800 0 SOMFY
t: 02 8845 7200
f: 02 8845 7282
e: somfy.au@somfy.com

New Zealand

Toll free 0800 2 SOMFY
f: 0800 SOMFAX
e: somfy.nz@somfy.com

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Case study: Santos Place

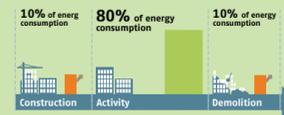
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FOR BIOCLIMATIC FAÇADES

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Somfy and Bioclimatic Facades

Buildings make up around 40% of total energy use in the western world. 80% of this energy consumption is consumed during the life activity of the building after it is built. As such they represent one of the largest opportunities to improve energy consumption and reduce carbon emissions. There is a very large potential for savings as many existing buildings consume more than 250kWh/m²/annum. Well designed and operated green buildings consume under 100kWh/m²/annum. Some European countries are enacting legislation to limit energy use to 50kWh/m²/annum within 5 years.



Bioclimatic Architecture

Traditional building design has seen the rise of buildings that are all but sealed to the outdoor environment with the indoor environment being regulated through mechanical means. As such one of the largest contributors to energy consumption within many buildings is heating, ventilation and air-conditioning, (HVAC).

Bioclimatic architecture puts the building's occupants at the centre of the design. Similarly the behaviour of the building's occupants can have a significant impact on the performance of the building. Bioclimatic buildings use the change in weather and climate over the day and over the seasons to assist in heating and cooling, and making the most of the available natural light.

The Façade; a True Membrane

The facade of a building is where the outdoors and indoors meet, where natural and man-made environments come together. Outside, climatic conditions continuously vary according to seasons, weather and the course of each day and night. Inside, living conditions must be as stable and comfortable as possible according to the occupants' activities, needs and

personal preferences. The façade membrane is where energy can most easily pass through as it enters and exits a building.

Solar Shading

Solar shading or solar protection is generally thought of as any method used to prevent the entry of solar energy into the building. Often fixed external structures are used to ensure that solar thermal loads are kept to an absolute minimum.

Operable solar shading is however a powerful tool to control and potentially harness the energy from the sun. In winter, with blinds and awnings retracted, free solar energy can be used to heat buildings. At night time the blinds can be closed to create an additional thermal insulation layer to keep the heat within the building. In summer the solar shading is deployed to protect the building and its occupants from overheating.



Bioclimatic Facades

Bioclimatic facades take all of these elements above to bring the highest levels of occupant comfort whilst working to ensure the minimum amount of energy is used. High performance facades with automated blind solutions, as used at Santos Place, can quickly adapt to changing weather during the course of the day and changing seasons over the course of a year.

Solar sensors, internal and external temperature sensors, wind sensors and human presence detectors can all work together to ensure that the indoor environment is in harmony with the needs of the building's occupants without having to completely rely on the traditional HVAC system. Indeed with careful design and integration of façade and building elements HVAC system capacities can be reduced with the resulting reduction in costs, energy usage and ceiling space required.

Somfy animeo IB+ Premium – Solar Control Strategy

animeo is an off-the-shelf façade control package with a high level of built-in features and flexibility. Designed to marry the challenges of occupant comfort and energy management **animeo** uses a zone based or individually addressable motor control

solution. A zone is usually made up of like products in a similar geographic area of the building whilst higher performing KNX or LON based solutions allow individual motors to be uniquely controlled.

Santos Place uses an **animeo** IB+ Premium package and is divided into ten zones, with an upper & lower zone on each of the four facades of the tower and additional zones on the podium level. The automated blinds in each zone are programmed to operate using the following control strategies.

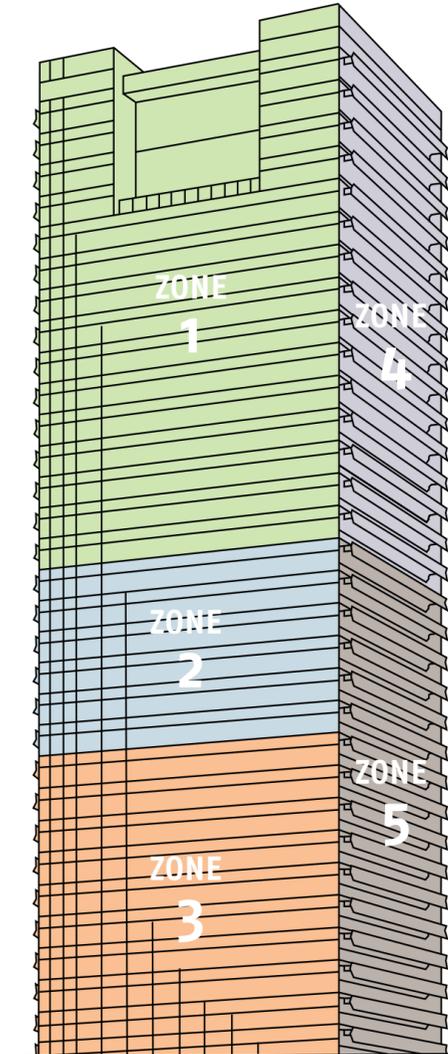


Sun Control – when the solar level is above a set threshold the blinds will lower to prevent thermal gains. Light sensors are placed on the roof of the building and are linked back to the **animeo** building controller

Sun Tracking – the blinds will automatically lower through 3 positions based on a pre-determined algorithm while the solar level is above the threshold.



Energy Management – per zone and per day during business hours the system strives for User Comfort and allows local control. Outside of these hours the system strives for Energy Saving by reducing or using thermal energy as the building requires. In this manner the building can be naturally warmed by the sun in the winter out of hours by raising the blinds.



Local Control – Occupants of the building have local control over the blinds in their immediate area through wall switches.



Building Reset – At a specified time each day the blinds in the building will all revert to a pre-determined position. This gives a uniform look to the façade with all blinds in the same position. A bold design statement!



Software –The **animeo** system is configured using a software package. This allows control over the finest detail but is easily reconfigured or refined by a trained user should the need arise. Additionally the system will log and report and faults or scheduled servicing requirements.