Case study: Santos Place

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 re-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 buildings 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.

Santos Place 6 Star Green Building

Project Details

Location
Brisbane, Australia

Type of Building
Commercial Office

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 Facade Management System

Project Manager
KWA Blinds
Case study: Santos Place

In the future the occupants’ activities, needs and comfort must be as stable and predictable as possible according to the conditions of each day and night. Inside, living climate is shaped by the seasons, weather and the course of the day and changing seasons over the year. Outside, climatic and natural environments outdoors and indoors meet, where the façade of a building is where the most of the available natural light can be captured, stored and used. Bioclimatic buildings assist in heating and cooling, and making use of the change in weather and climate through mechanical means. As such, the indoor environment being regulated by the building’s façade is where energy can most easily pass through as it enters and exits a building.

The façade is a powerful tool to control and potentially harness the energy from the sun. In winter, with blinds and awnings retracted, the 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 Architecture

Traditional building design has seen the use of buildings that are all but sealed to the outside 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 are designed to 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 is a True Membrane

The façade of a building is where the outdoor and indoor microenvironments come together. Outside, climatic conditions continually vary according to seasons, weather and the course of the day and night. Inside, living conditions must be as stable and predictable 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 exists 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 internal structures are used to ensure that thermal loads are kept to an absolute minimum. Operable solar shading is a powerful tool to control and potentially harness the energy from the sun. In winter, with blinds and awnings retracted, the 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 the highest levels of occupant comfort whilst existing to ensure the minimum amount of energy is used. High performance façades 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.

Energy Management

Every zone and each façade window can be independently managed through the building controller. Inside, the automated blinds in each façade window can be controlled through wall switches so that the occupants can easily make adjustments to their immediate area or LON based solutions allow individual motors to be uniquely linked back to the building controller.

Software

Software allows control over the blinds in their immediate area through wall switches. Local control – where the occupants in their immediate area can control the blinds in their immediate area through wall switches.

Remote Control – when the building controller or a pre-determined algorithm identifies that the solar level is above a set threshold.

Sun Tracking – the blinds will automatically lower through a pre-determined algorithm when the solar level is above a set threshold. Solar Shading or Solar Protection allows control over the solar levels of the façade.

Building Information Model (BIM)

The façade is divided into ten zones, each zone and per day during business hours the system allows local control over the blinds in their immediate area or LON based solutions allow individual motors to be uniquely linked back to the building controller.

Somfy animeo IB+ Premium – Solar Control Strategy

Somfy animeo IB+ Premium is a solar control package that is deployed to protect the building and its occupants from overheating. The façade is a powerful tool to control the solar energy entering the building. The façade is used to harness the energy from the sun. In winter, with blinds and awnings retracted, the 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.

Sanofi Mene is an off-the-shelf façade control package with a high level of built-in features and flexibility. Designed to overcome 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 the products in a similar geographic area of the building whilst higher performing HVAC or LON based solutions allow individual motors to be separately controlled.

Landmark – BIM format of the façade that allows local control of the blinds in their immediate area through wall switches.