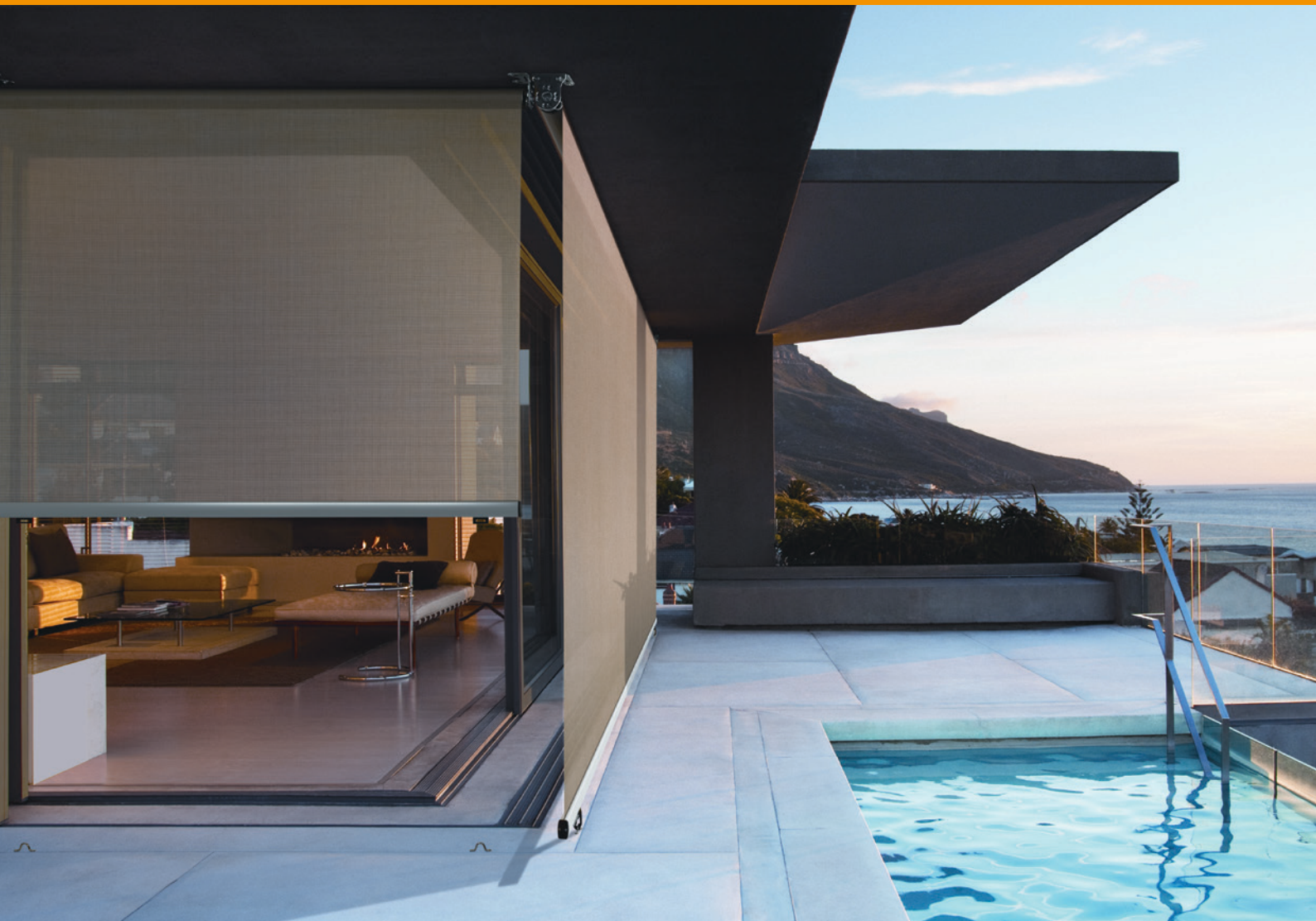


THE RIGHT SIDE OF SUSTAINABILITY:

A Specifier's Guide to Side-Retention Systems



INTRODUCTION

Climate change is arguably the defining crisis of modern society. Globally, levels of greenhouse gas emissions grow each year,¹ with Australia ranking as one of the highest emitting countries on a per capita basis.² Rising temperatures and the frequency of extreme weather events are set to escalate if the climate problem remains unchecked.

The built environment is a major contributor to the changing climate. Electricity and heating are among the biggest contributors to global greenhouse gas emissions.³ In Australia, buildings produce 25% of the country's total emissions.⁴

By implementing principles of sustainable design, architects, designers and specifiers can play a critical role in mitigating the building industry's impact on climate change. Residential and commercial buildings can achieve significant reductions in emissions and energy consumption by providing energy-efficient thermal comfort and utilising renewable energy and materials.

Side-retention systems are one example of sustainable design in action. Well-designed and specified side-retention systems contribute to energy-efficient, healthy and sustainable buildings by addressing a range of environmental factors – from heat gain and natural light control to protection against wind, rain and sun. Leading solutions also leverage cutting-edge technology to deliver greater efficiency, occupant comfort and functionality.

In this whitepaper, we take a closer look at side-retention systems and their many benefits. We also examine the key considerations when selecting the ideal side-retention system for modern Australian homes and commercial buildings.







WHAT ARE SIDE-RETENTION SYSTEMS?

Side-retention systems are straight drop awning systems designed for use on external buildings. They are characterised as a soft skin façade that is designed to enclose and protect an outdoor environment from the elements. The main component of these systems is a fabric sheet – such as acrylic canvas, mesh or PVC (polyvinyl chloride) – that is tensioned between left and right channels.

Side-retention systems are constructed to withstand blow-outs from high winds with no gaps for dust, dirt or pests to enter. When fully extended, side-retention systems transform an outdoor space into an “indoor” room, combining the benefits of indoor and outdoor living. Common applications of side-retention systems include balconies, alfresco areas, pergolas and verandas.

BENEFITS OF SIDE-RETENTION SYSTEMS

MANAGING HEAT GAIN

A key benefit of incorporating side-retention systems in modern building design is increased energy efficiency, primarily due to effective management of heat gain. Absorption of sunlight into a residential or commercial building is a main contributor to heat gain. If heat gain is not managed correctly, artificial heating and cooling systems will be required to maintain a thermally comfortable internal environment.

As internal spaces warm up, more air conditioning is required to maintain comfortable temperatures. This is of concern in Australia given the country's warm climate, but it is also an issue worldwide. The International Energy Agency projects air conditioning use will rise to make up 13% of all global electricity consumption and contribute two billion tonnes of CO₂ annually.⁵

By effectively managing heat gain, side-retention systems can make buildings more comfortable and reduce energy consumption. Side-retention systems provide shading, limit the amount of sunlight entering indoors and prevent heat transfer through glass windows. Radiant heat readily passes through glass and is absorbed by elements and furnishings, increasing internal temperatures.⁶

Studies have shown that effective shading design reduces cooling loads during hot periods. In 2015, a published study found that an external shading device delivered 35.1% reduction in cooling loads in relation to an office building.⁷ Other studies show that window awnings reduce summer heat gain by up to 65% on south-facing windows and 77% on west-facing windows.⁸

NATURAL LIGHT CONTROL

Sun protection has additional benefits. Side-retention systems block harsh ultraviolet (UV) light, which can damage and fade furniture and other indoor items after prolonged exposure.

Side-retention systems also enable a controlled amount of natural light to enter an indoor space, providing light filtering that contributes to a comfortable living environment. Light filtering reduces the impact of glare, which can interfere with human vision. Spaces that are naturally lit require less artificial lighting leading to further reductions in energy consumption.

HEALTH, WELLBEING AND COMFORT

The health and wellbeing benefits of side-retention systems derives from enabling an improved connection to the outside world.⁹ It is well-established that access to daylight and outdoor views positively impact human wellbeing.¹⁰ Good window design also contributes to daylight and outdoor views but, as noted above, solutions for mitigating heat gain and glare need to be incorporated.¹¹

Side-retention systems increase ventilation and airflow, helping to cool spaces on warmer days and cycle out stale air. Some systems offer adjustability that, depending on the angle of the sun, provides shading while still allowing cooling air to enter.

When fully extended, side-retention systems are designed to prevent insects, dust and dirt from entering indoors. Depending on the fabric design, some systems can also provide enhanced privacy and security.

DESIGN VERSATILITY

Side-retention systems provide greater design versatility than fixed facades. Such systems provide protection against weather elements, yet enable rooms to be opened up to the outside. This feature allows architects to design spaces that fulfil a variety of indoor and outdoor purposes.



SPECIFYING SIDE-RETENTION SYSTEMS: KEY CONSIDERATIONS

SUSTAINABILITY CERTIFICATION

By reducing the reliance on artificial heating, cooling and lighting, side-retention systems contribute to certification under the various sustainability certification systems common in Australia. For example, GreenStar is a prominent, internationally-recognised sustainability rating scheme administered by the Green Building Council of Australia. GreenStar assesses the design, construction and operation of buildings against a set of sustainability criteria. Building products that have been independently tested and certified in relation to energy consumption and impact on artificial heating and cooling over the life of the building contribute significantly to a positive GreenStar rating.

Leading manufacturers offer additional features that contribute to sustainability certification. For example, some systems feature solar-powered motor operation that does not require hardwiring electricity. As they rely on a renewable energy source, solar-powered side-retention systems are environmentally-friendly and help achieve further reductions in building energy consumption.

WIND RESISTANCE

Resistance against high winds is a key feature of side-retention systems. Specifiers should select products that meet the relevant performance requirements set out by building standards and regulations. This can be checked by requesting evidence of independent wind performance testing under the relevant standard. The European standard – *EN 13561:2009 External Blinds and Awnings - Performance Requirements Including Safety* – provides guidance in this area.

HEADBOX OPTIONS

Side-retention systems are available with various headbox options. Closed headboxes enclose the fabric, providing added protection against wind, rain and UV light. This added protection will typically extend the service life of the fabric.

However, certain fabrics such as PVC skins must be protected from heat build-up. Open headboxes allow air to circulate around the roller. The installation context, roller design or

aesthetic preference may also call for an open headbox. No headbox may be specified, which is a configuration that fully exposes the roller and is suitable for an industrial aesthetic.

FABRIC SELECTION

Specifiers should consider the intended application, user requirements and installation context when selecting fabric for side-retention systems. Requirements for privacy and ventilation need to be balanced – open weaves will enable breeze to filter through but will provide less privacy whereas closed weaves will offer greater privacy but tend to limit the entry of cooling air. One-way see-through fabrics are available. Depending on the opacity level of the fabric, the clarity of view from inside or outside can differ depending on levels of light at different times of day.

The durability and colour fastness of the fabric is also a key consideration. As the fabric is exposed to the elements, it needs to be resistant to stains and weather damage so that it does not need to be regularly replaced. Specifiers should ensure the fabric has been tested for fade resistance, which occurs after prolonged exposure to UV light. To ensure maximum longevity, specifiers should select systems that are easy to clean and maintain.

OPERATION

Some side-retention systems stand out due to the variety of operation options and features offered. Operation can be by winch, manual crank, or standard spring mechanisms. Motorised operation is offered by leading suppliers, including remote control operation. As previously stated, leading Australian manufacturers now offer solar motorisation.

Some systems lend themselves to the growing trend of building automation or "smart" buildings. For example, leading solutions include light and wind sensors that operate the awning based on light or wind levels. Light sensors raise or lower the awning in response to changing light conditions. Wind sensors retract an awning in overly windy conditions to protect the awning from unnecessary strain.



Caption

NORFOLK BLINDS

Norfolk Blinds are Australia's premier manufacturer of commercial and multi-residential blinds and curtains. Commencing manufacture in 1990, Norfolk has developed into a national manufacturer and installer of premium internal and external window furnishings and sun control products.

Norfolk Blinds are fully edge sealed and tested using modern technology and equipment in the company's cutting-edge manufacturing facility. All Norfolk manufactured products come with a five-year warranty.

Norfolk Blinds is supported by an expert team, who provide comprehensive assistance throughout all stages of the product life cycle. The company has a proven track record with over 1500 commercial projects completed successfully within the last four years, all delivered in full and on time.

AXIS SIDE-RETENTION SYSTEM AWNING

Designed in Australia, Axis External Awnings is the modern awning system suited for all exterior buildings. With first class quality and operation, this range provides privacy, security and functional design combined with premium aesthetics.

The Axis Side-Retention System Awning is a straight drop awning solution ideal for sun protection, insect resistance, windy applications, enclosing a balcony and creating privacy. The fabric is tensioned by utilising a floating channel, placed within a special two-piece channel, eliminating the possibility of fabric blow outs and gaps for light, dust, dirt or pests to enter.

This solution is available in a range of fabrics, headboxes, and bottom rail accessories. With custom sizing and specifications, Axis Systems Awning can meet specific project requirements and is ideal for a wide range of applications and installation contexts.

Key features:

- Cleverly-designed tube reducers allow fabric to roll smoothly reducing tracking and improving roll performance.
- Fixing components available in durable zinc or 304-grade stainless steel ideal for coastal environments.
- Variety of operating options including Light Lift, an innovative operating option allowing users to raise and lower the awning by simply moving the bottom rail by hand.
- The Axis Awning Pivot Arm projects the fabric off the window, forming an arc that allows air to flow behind the awning, with a heavy-duty design that is ideal for larger windows.
- Motorised awnings available featuring remote control operation with options for programmable timed events and compatibility with automation systems for smart homes.
- Axis Awning hardware is available in a range of six factory finish colours.

Axis Awning Solar Motorisation

Axis Awning incorporates the best of technology and design with its completely solar-powered model that enables users to control their awning easily with a touch of a button. No hardwiring electricity is required for motor operation, eliminating the need for a certified electrician. Wireless wall switch, timer remote and platinum remote control options are available.

The adjustable solar panel facilitates multiple mounting options and features an LED indicator highlighting if repositioning of the solar panel is required for more sunlight. This solution also features a serviceable solar battery with battery heat protection.

The Sustainable Option for Awnings

Axis Awnings reflect heat, keeping interiors cool and reducing energy costs. This system has been independently-tested to significantly reduce cooling energy costs by up to 60% for a standard home by efficiently maintaining a comfortable temperature throughout the summer season.

Axis Awnings have also been tested to comply with a Class 3 level of Wind Resistance under the European standard, EN13561:2009.

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All information provided correct as of April 2020