### FLAME RETARDANT

#### COMMERCIAL FABRICS

	Vertical	Roller	Panel	Cellular	Weight	Widths	Wide Width	Wipe Clean	Reflective	Recycled Yarn	PVC	Moisture Resistant	Antimicrobial	VOC Free	Halogen Free
SCREEN/SHEER															
Oslo 1%	٠	•	٠		251g/m²	3m	•	٠						•	
Perspective 1%	•	•	•		506g/m²	2m, 2.5m, 3m	•	•				·	•	•	
Perspective 3%	•	•	٠		450g/m²	2m, 2.5m, 3m	•	•				٠	•	•	
Perspective 3% White Back	•	•	٠		450g/m²	2m, 2.5m, 3m	•	•				٠	•	•	
Perspective 5%	•	•	•		443g/m²	2m, 2.5m, 3m	•	•				•	•	•	
Perspective Aluview 3%	•	•	•		512g/m²	2.5m		•	•			•	•	•	
Perspective Pureview® 3%	•	•	•		450g/m²	2m, 2.5m, 3m	•	•				•	•	•	
Voile	•	•	•		127g/m²	2m, 3m - White only	•						•	•	
LIGHT FILTERING															
Carnival	•	•	•		268g/m²	2.05m, 2.5m, 3m	•			•			•	•	•
Dapple SPC®+	•	•	•		329g/m²	2m		•	•				•	•	
Daybreak	•	•	•		247g/m²	2m, 2.5m, 3m	•							•	
Guardian®	•	•	•		300g/m²	2m		•					•	•	
Halo Pro FR				•	170g/m²	3m	•					•		•	
Vermont (online PDF)	•	•	•		309g/m²	2m		•		•			•	•	
BLACKOUT															
Carnival Blackout	•	•	•		432g/m²	2.05m, 2.5m, 3m	•			•			•	•	•
Ex-Lite®	•	•	•		423g/m²	2m, 2.5m, 3m	•	•			•	•	•	•	
Luna Pro FR				•	215g/m²	3m	•					•		•	
Perspective Blackout	•	•	•		660g/m²	3m	•	•				•	•	•	
Sunset		•	•		374g/m²	2m, 2.5m, 3m	•							•	
Marble (online PDF)	•	•	•		432g/m²	2m		•			•	•	•	•	
Matrix (online PDF)	•	•	•		431g/m²	2.1m								•	
Reverie (online PDF)	•	•	•		423g/m²	2m		•			•	•	•	•	
Romany (online PDF)	•	•	•		435g/m²	2m		•			•	•	•	•	



## SUSTAINABLE SOLAR SHADING

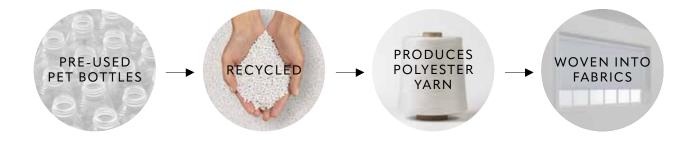
#### HELPING THE ENVIRONMENT

Sustainability is at the heart of everything we do, whether in our fabrics, our hardware systems, and all of our production processes. This includes introducing recycled and reclaimed materials throughout our product ranges.



#### 4600 BOTTLES MAKE A 20M ROLL OF FABRIC

Carnival and Carnival Blackout are woven entirely from post-consumer plastic bottles, 1% of which is ocean waste. The aim of recycled polyester is to reduce, re-use and recycle, creating sustainable fabrics that contribute to a greener way of living and caring for our planet.





#### RECYCLED AND RECLAIMED MATERIALS

These are used wherever possible within the production of our fabric and systems, and is a position we will continue to develop.



#### GREENSHIELD

Our Greenshield fabrics contain no Volatile Organic Compounds (VOCs) or hazardous substances that could be released into the environment in potentially damaging quantities.



#### HALOGEN FREE

Flame retardant coatings typically contain additives containing halogens. However, the Carnival ranges are certified as halogen free.





Oeko-Tex® STeP is a globally recognised certification that holds companies to a high standard of sustainability and environmental responsibility.

# RESPONSIBLE PRODUCTION FOR PEOPLE AND PLANET

Louvolite fabric production is certified Level 3 OEKO-TEX® STeP, the highest standards for our customers complete confidence.



Environmental and chemical management



Social responsibility and fair working conditions



Safety and protection for workers



Efficiency and continuous improvement of production processes and efficient use of resources





#### **ENERGY SAVING FABRICS**

#### SAVING YOU MONEY

All our fabrics have been assessed for their ability to reduce thermal loss when used in conjunction with typical glazing systems.

#### GOOD

Energy Rating 3 (ER3).
Fabrics that fall into this category perform to a reasonable level and should be the minimum products that customers select to make a tangible difference to thermal loss. Savings of up to 11% per year can be made with these fabrics.

#### ER3 FABRICS

Voile

#### BETTER

Energy Rating 2 (ER2).
Fabrics that fall into this category perform better and these fabrics are classed as effective in the reduction of thermal loss.
Savings of up to 12% per year can be achieved.

#### ER2 FABRICS

Carnival
Dapple SPC®+
Daybreak
Guardian®
Oslo 1%
Perspective 1%
Perspective 3%
Perspective 3% White Back
Perspective 5%
Perspective Aluview 3%
Perspective Pureview® 3%
Vermont

#### BEST

Energy Rating 1 (ER1).
These fabrics offer the best performance and are the most efficient for reducing thermal loss when used in tandem with glazing systems. Savings of up to 15% per year can be achieved with these fabrics.

#### ER1 FABRICS

Carnival Blackout
Ex-Lite®
Halo FR
Luna FR
Marble
Matrix
Perspective Blackout
Reverie
Romany
Sunset



## SUSTAINABLE SOLAR SHADING

#### SELECTING THE RIGHT SOLAR SHADING CAN REDUCE ENERGY COSTS BY UP TO 16%

Rising energy costs and the need to reduce carbon footprints has made energy efficiency a top priority. Solar shading is a cost-effective solution to tackle overheating in high-performing buildings.

Solar shading significantly reduces the need for mechanical air conditioning. Aircon does not have an effect on radiant heat exchange and can also negatively impact on indoor air quality. Using solar shading and less of air conditioning saves energy and saves you money.

#### **KEY BENEFITS**

- Reduced heat gain in summer.
- Reduced heat loss in winter.
- · Controls daylight.
- Controls glare.
- Improved indoor air quality.
- Reduced energy costs (heating, cooling and lighting).
- Building compliance.
- Privacy and security.
- Maintaining views to the outside.
- Allows more glazing to be used.
- Reduced emissions.
- High colour rendering index.
- Improved acoustics.
- Improved glass performance (improve don't replace).
- Improved thermal, visual and acoustic comfort helps to improve overall well-being and productivity of staff.

# THE BENEFITS OF SOLAR SHADING IN COMMERCIAL BUILDINGS

#### S SOLAR GAIN & OVERHEATING

Shading prevents overheating. Solar gain (G TOT) with double glazed windows can be reduced from 0.85 to 0.24 by using shading.

#### **HEAT LOSS & INSULATION**

Glazing is a weak point in a building's thermal performance and a major source of heat loss. Shading insulates a building's glazed areas. A single glazed window can have its insulation improved by over 50%.

#### H HVAC REDUCTION

Building modelling proves substantial HVAC savings of up to 16% for highly-glazed office space using internal shading. With optimal integration the need for airconditioning can be reduced. Shading systems are beneficial all year round as they reduce the need for cooling when hot and reduce the need for heating when cold.

#### A ARTIFICIAL LIGHTING

Artificial lighting can be reduced by controlling and optimising the amount of daylight with shading. People naturally prefer daylight to other sources of illumination.

#### CAPITAL SAVING

Solar shading is a self-financing climate control system. An analysis of HVAC systems in three climate zones - Stockholm, Amsterdam and Madrid showed how solar shading paid for itself in less than a year.

#### **G** GLARE CONTROL

Light and glare is effectively controlled by shading. Shading regulates luminance according to varying visual comfort needs.

#### **COLOUR RENDERING**

Artificial light can cause inadequate colour rendition with detrimental effects in terms of stress levels and productivity.

#### PRODUCTIVITY

Work performance diminishes below 19-22°C and above 23-24°C. Shading systems can contribute to superior work performance, increased concentration and well-being in the workplace.

#### INDOOR COMFORT

Almost 90% of our time is spent indoors. Thermal, visual and acoustic comfort aids emotional, attitudinal and cognitive response in an individual.

#### D DAYLIGHT HARVESTING

Shading allows harvesting of natural light, which improves indoor comfort, occupants well-being and reduces the use of artificial lighting, saving money.

#### DAYLIGHT EXPOSURE

Insufficiant daylight affects task performance and can cause visual and physiological disorders e.g. headaches, eyestrain, depression and reduced vitality.

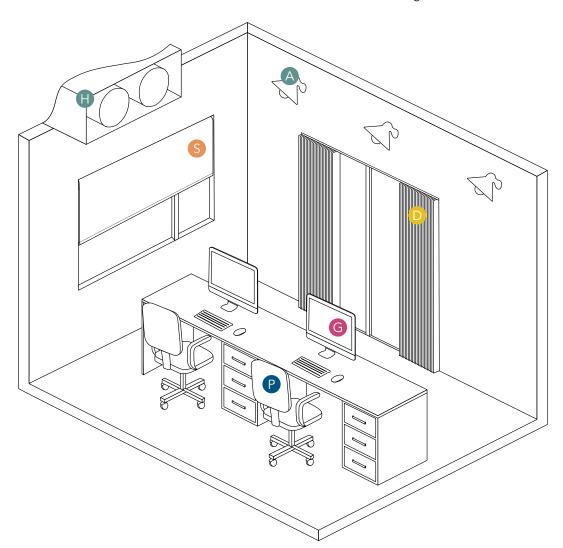
Office workers exposed to daylight and contact with the outside world have been found to sleep an average of 46 minutes more every night compared to those in offices with no natural light.

#### **PRIVACY**

Shading offers two way privacy and a functional/visual divider in buildings.

#### BENEFITS OF AUTOMATION

Optimal, dynamic performance delivered by motorised window shading significantly reduces the risk of overheating.



#### HOW SOLAR SHADING SAVES YOU MONEY

#### CONTROLLING LIGHT AND GLARE

People naturally prefer daylight to other sources of illumination. Daylight has a positive effect on the biological rhythms of our bodies, improving emotional and cognitive responses.

Proximity to natural elements such as greenery and sunlight has been associated with a 15% improvement in wellbeing and creativity, and a 6% increase in productivity, but excessive exterior light, or glare, can hinder visual comfort. There are regulations in place that require the attenuation of light at workstations.

Shading allows the most to be made of natural daylight and unlike solar control glass, which is a purely passive product, shading solutions can react to varying external conditions.

#### REDUCING HEAT LOSS

Glazing is a weak point in a building's thermal performance, a major source of heat loss, and unnecessary costs. The 'go-to' solution would be to upgrade the glazing but shading should be the initial step, especially if there are building constraints, such as conservation areas, as shading helps provide insulation for glazed areas.

#### CONTROLLING HVAC

Window blinds reduce heat loss during the winter and heat gain in the summer, thereby reducing a building's heating and cooling requirements. Air conditioning currently accounts for 10% of the global electricity use. With that figure increasing it can increase a building's energy consumption (and associated carbon emissions) by up to 100%.

Shading can aid natural ventilation of buildings during warmer times of the year, if windows are opened. Modelling shows internal shading is an investment and can save up to 16% of HVAC energy.

#### REDUCING HEAT GAIN

To be energy efficient, most modern buildings are highly insulated and 'airtight', but this significantly increases the risk of over-heating. Overheating becomes more of a prominent problem with the reality of global warming, as higher temperatures are expected across the UK during the next 30 years, with heat related deaths tripling by 2050. Appropriately controlled shading can significantly minimise the risk of overheating.

#### PRODUCTIVE ENVIRONMENTS

We spend up to 90% of our time indoors, so ensuring such environments are comfortable is essential.

Productivity is impacted by thermal comfort. Temperatures which are too low inhibit dexterity while temperatures that are too high result in perceived lower air quality and health implications, such as increased stress and blood pressure. Heat also facilitates the spread of infection and diseases, a massive risk in healthcare and childcare sectors.

Performance affected from glare and reflections can cause eye strain and headaches

Glazing is poor at preventing external sound entering our buildings, such as passing traffic or noisy neighbours. Inside, glazing acts as a hard surface allowing noise to rebound into the room. A softer furnishing at the window can absorb this sound, creating a more pleasant environment.

Shading, integrated into the building's design, can help achieve thermal, visual and acoustic comfort. Neglecting these aspects of building design can result in overall reduced productivity, increased costs and more frequent sick leave.