INTELLIGENT SKIN

DYNAMIC SHADING FOR COMPLEX FAÇADES

artisan
BLINDS + SHADES

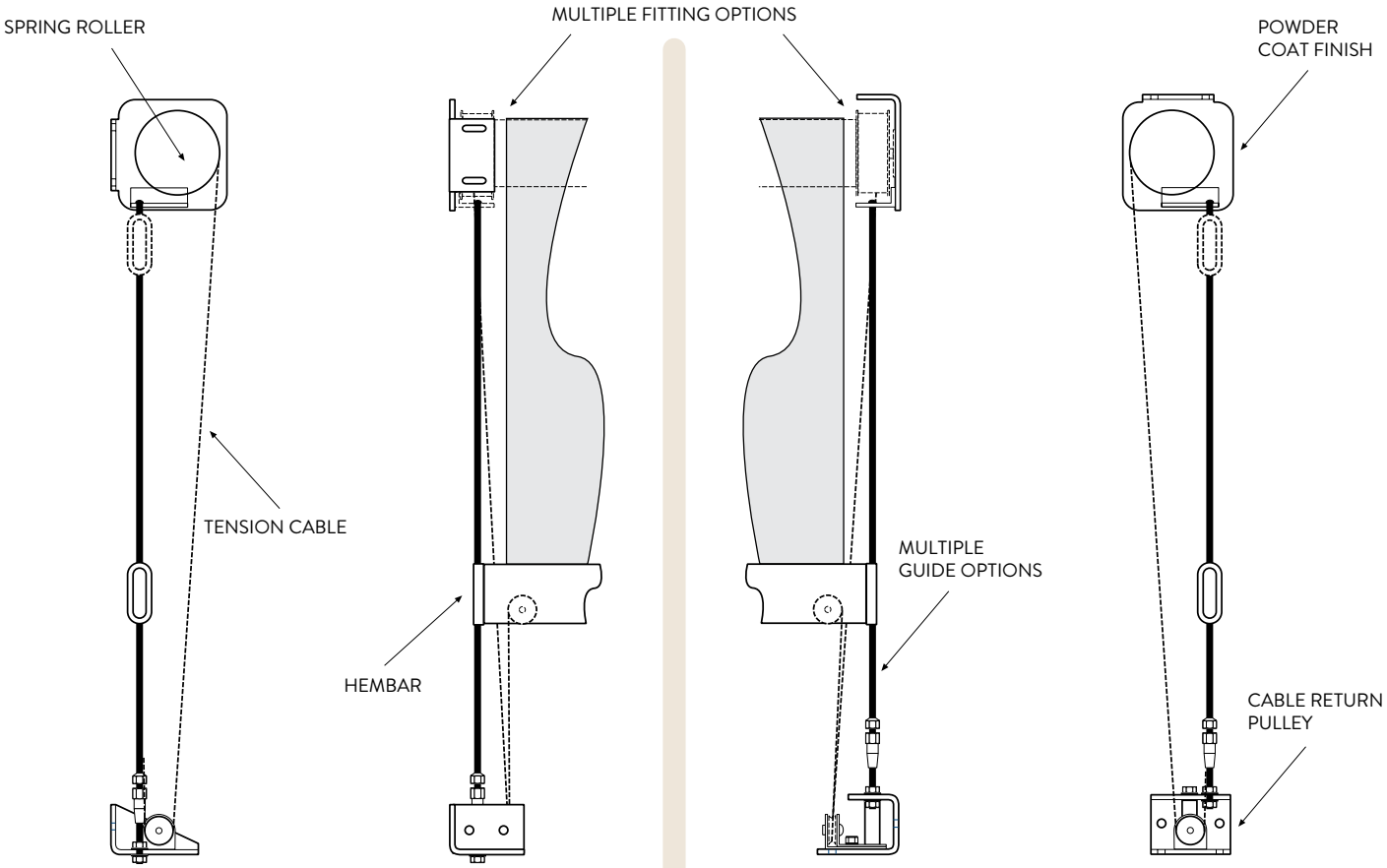
Glass facades. Beautiful, striking and modern, they answer that fundamental challenge faced by all architects: how to balance our need for shelter with our desire to connect with nature.

The flexibility and strength of glass inspires spectacular forms and amazing spaces, but it also demands that design teams balance beauty, energy, comfort and commercial success.

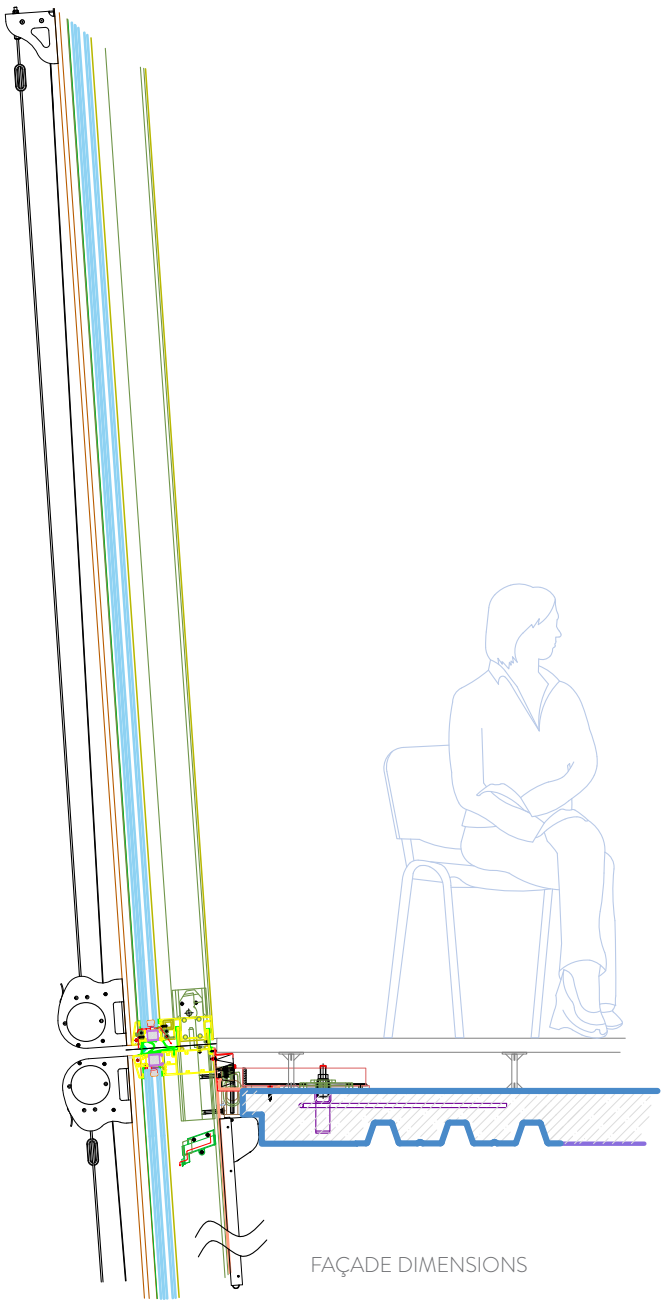
That's where a fabric shading system becomes invaluable. Precise heat and light control that responds to the changing weather means comfort, visibility and energy use can be truly optimized. When skillfully integrated into a building's design, TESS™ systems can enhance its performance architecturally, commercially, and environmentally.

Tensioned fabric systems combine all the benefits of a standard façade blind with the additional strength to withstand adverse weather, the versatility to work in any angle or shape, and the durability to ensure minimal maintenance.

TESS™ TENSIONED SOLAR SHADING SYSTEMS

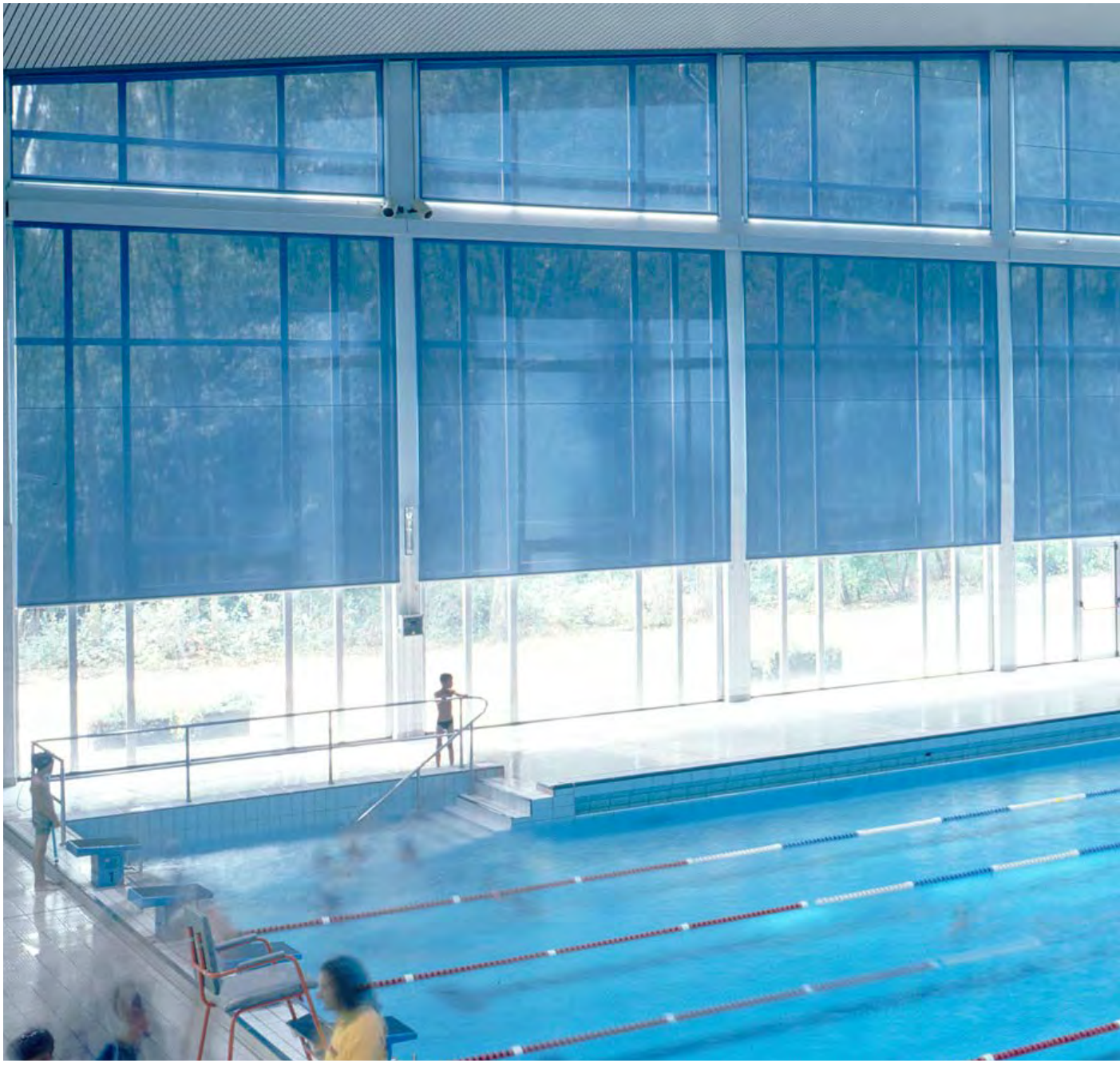


TESS™ systems are built around a unique single barrel tension mechanism. Motor, spring, gearbox and control cable work in harmony to consistently hold fabric flat and intelligently adapt to the surrounding environment, regardless of angle or system direction.

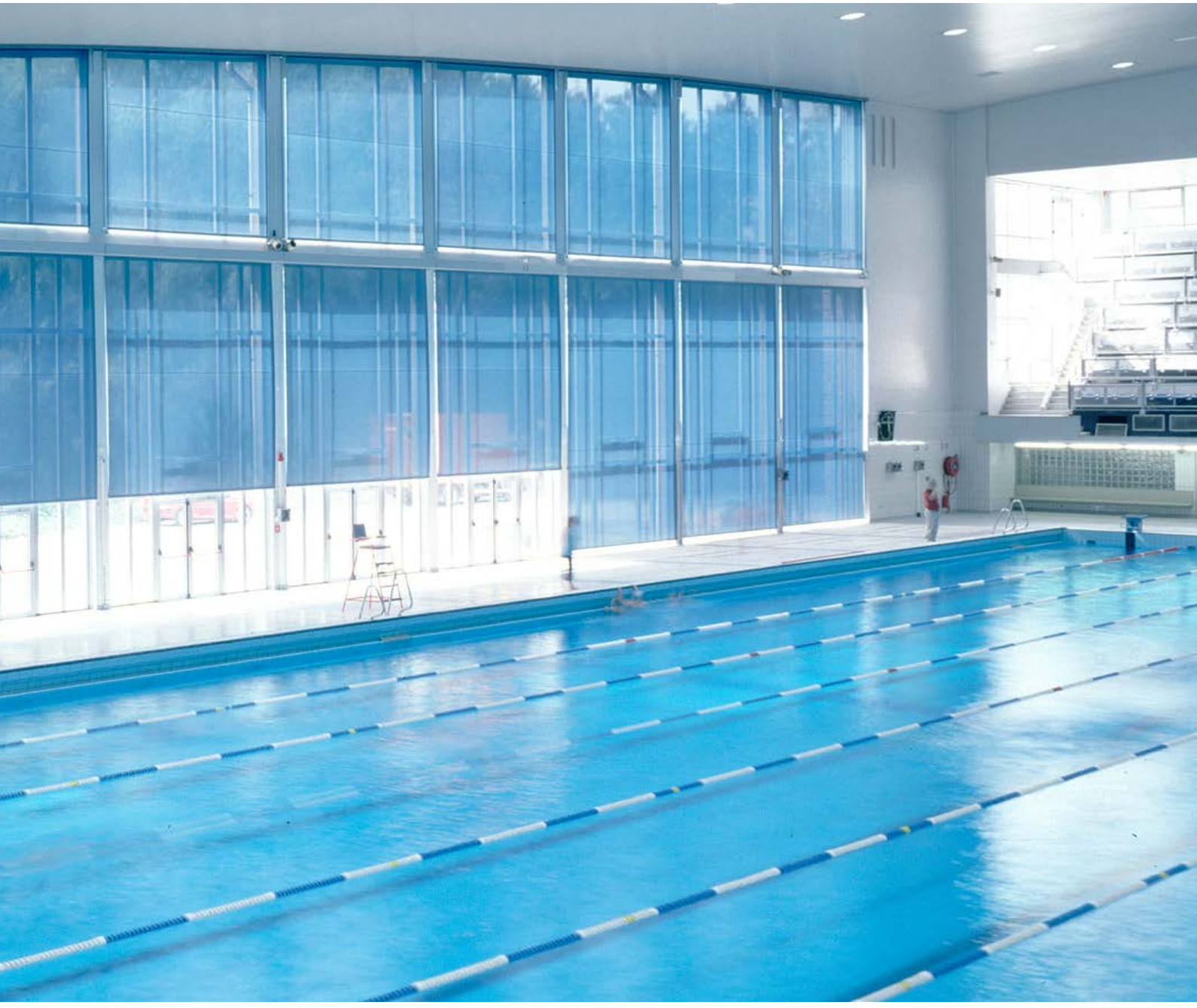


FAÇADE DIMENSIONS

STRENGTH WHEN



THE PRESSURE'S ON



External shade systems are exposed to constantly changing wind speeds, so strength and durability are key. The single-barrel torsion spring mechanism used in the TESS™ systems makes them inherently stronger and more flexible than systems that rely on weighted bottom bars or less precise 'clock spring' technology which can result in flapping or jamming in turbulent conditions. They allow for a slight, controlled movement to limit the effect of the wind, adapting to changing conditions and preventing overloading due to sudden gusts. Installed with an accurate tension setting, the fabric is consistently held flat as the blind moves, whatever its size, shape or running direction.

VERSATILITY

FROM ALL ANGLES

Over 35 years spent developing products and bespoke projects means Guthrie Douglas built up a substantial library of creative ideas for façades of all shapes, angles, sizes and configurations. A variety of 'off-the-shelf' guide systems and adaptable brackets mean they can work with any structure to ensure invisibility when the blind is retracted, and the unlimited colour finishes and a wide range of technical fabrics give you the freedom to configure the product to your project brief.

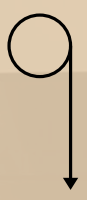
RELIABILITY THAT'S

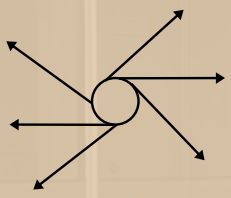
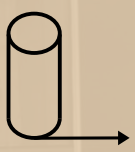
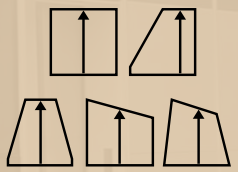
PROVEN

If you're considering a shading system you may be concerned that despite the benefits, moving parts can mean added project risk and unwanted maintenance. That's why Guthrie Douglas determined that TESS™ products deliver both elegance and efficiency, without inconvenience. The tension mechanism at the core of the technology is precise, yet deceptively simple, and doesn't rely on delicate dual motor balancing arrangements or complex gas strut devices. Prototypes are tested in Guthrie Douglas factory for many tens of thousands of cycles – well in excess of 4 times their reasonable usable life. All TESS™ systems are designed and built in the UK from European components, to meticulous quality standards, so you can be sure they won't just look good, they'll work. And keep working.

CONFIGURATION OPTIONS

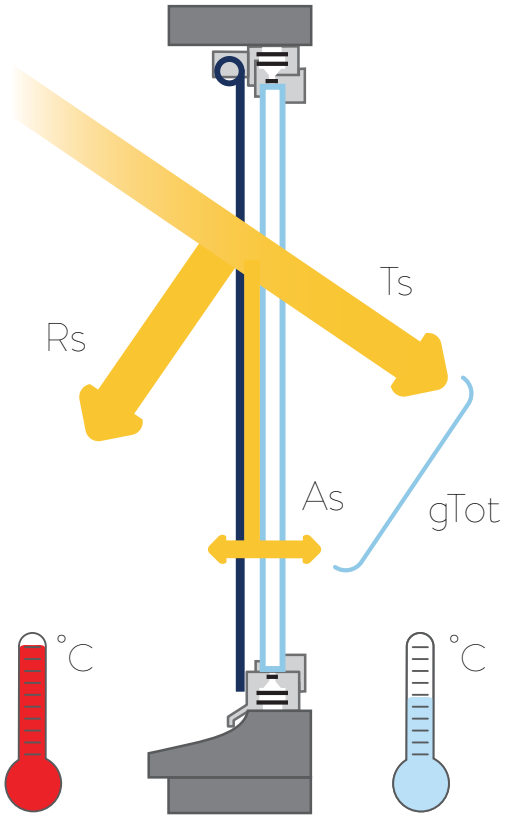
Whatever the priorities of your façade design, TESS™ shading systems can work to your advantage. Tensioned façade blinds can be integrated within the curtain wall or façade structure for a clean look, or can be set out from the façade using stainless steel cable guides to create the illusion of floating fabric. Of course, every project comes with its own challenges, but here are some of the most commonly used configurations.

DESCRIPTION	TOP-DOWN DEPLOYED ROLLER BLIND	TOP-DOWN – BOTTOM-UP DEPLOYED ROLLER BLIND
		
LAYERS	1	2
SIZE	1.5*10.5m	1.5*8m or 1.5*10.5
MATERIALS	FABRIC	FABRIC
LIGHT TRANSMISSION	2–3%	20%/5%
MAINTENANCE/ ACCESSIBILITY OF MECHANICAL PARTS	ACCESS THROUGH SLAB EDGE	ACCESS THROUG SLAB EDGE
AMOUNT OF MOTORS	2 PER 3m UNIT	4 PER 3m UNIT
DAYLIGHT REDISTRIBUTION	NO	NO
DIMMING POSSIBILITY	NO	YES

	TWO TOP-DOWN DEPLOYED ROLLER BLIND	TITLE	TITLE	TITLE	TITLE	TITLE
						
	2					
5m	1.5*10.5m/1.5*10.5m					
	FABRIC					
	20%/5%					
GH	ACCESS THROUGH SLAB EDGE					
T	4 PER 3m UNIT					
	NO					
	YES					

The interaction of light with a glass surface is a complex area of study, and one Guthrie Douglas constantly examining. Advanced building physics modelling systems can simulate the effect of solar radiation and energy flows on internal environments, examining variables such as solar angle (dependent on geographic location and time of year), glazing type, shading system, and the aspect and construction of a specific building.

SOLAR ENERGY CONTROL



THERMAL GAIN

The g-value, or total solar energy transmittance, is the percentage of solar energy that reaches the interior of a building. It is calculated from a number of factors, including direct transmittance, reflectance, and absorptance.

External fabric shading can achieve a g-value as low as 0.02 for all types of glazing. This means that fabric shading can deliver the required environmental benefits while also reducing the overall project cost, as savings can be made on the glazing specification.

This illustrations shows a thermal simulation of a conventional single skin façade with an internal shading system, compared with a double skin façade with an integrated shading system in the mechanically ventilated cavity.

ENERGY SAVINGS

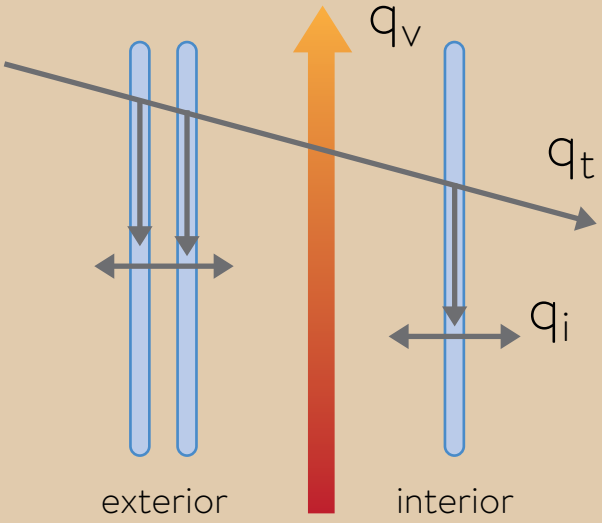
Dynamic fabric shading can mean significant energy savings because it removes the need for artificial cooling, lighting and heating. For south facing facades this reduction can even be as much as 65%.

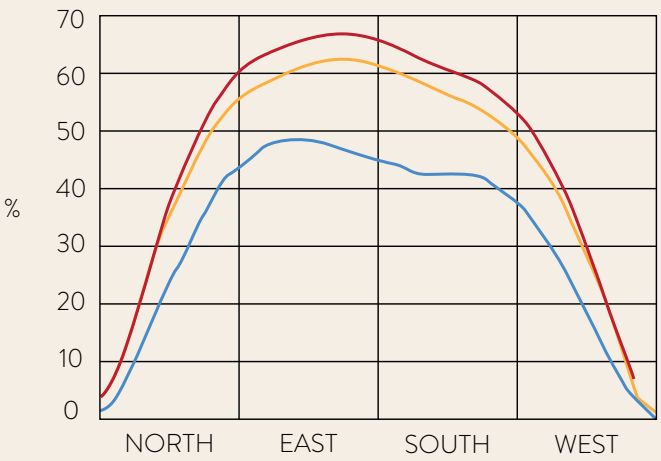
The biggest single area of savings is air conditioning, where external blinds can help achieve energy savings of over 70%. (Source: ESSO). Savings are also significant for lighting costs, especially where building management systems synchronize shading and lighting use.

Whereas louvers, film or ‘solar control’ glazing cast a permanent shadow, automated fabric shades offer more versatile control and allow you to enjoy natural light, even in duller conditions. Finally, the use of highly insulating fabrics can even reduce heating costs in colder weather, especially when closed overnight.

CO^2 EMISSIONS

If environmental credentials are important to the design brief, be assured that fabric shading will make a real difference. The appropriate automated fabric shade will deliver energy savings of up to 60 times its CO2 footprint over a 20 year lifespan. Approximately 86% of relevant emissions come from the extraction of raw materials and the production of primary products. Only 0.5% is created during manufacturing. This makes fabric shading a popular choice for any designer thinking about environmental impact.

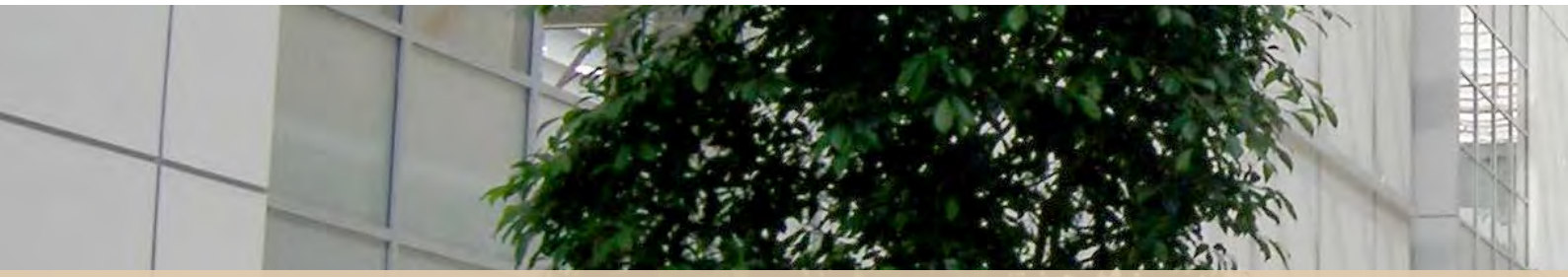




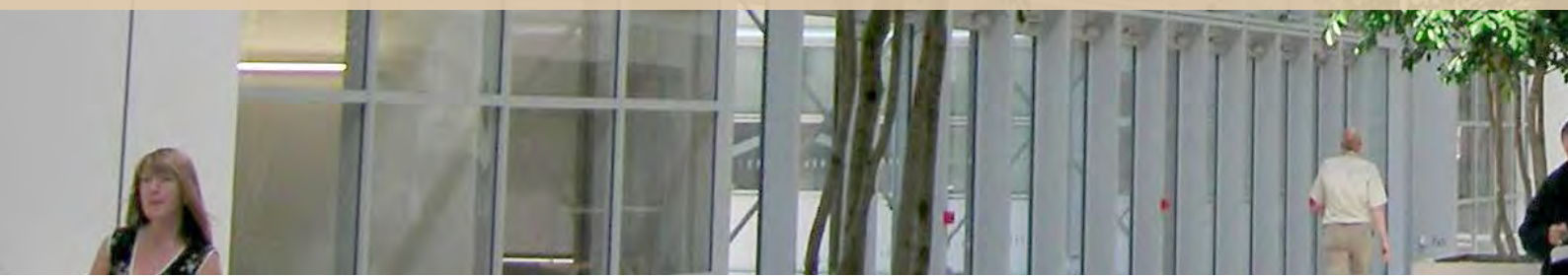
Reduction in primary energy use for heating, cooling and lighting through shading, when compared to the energy use without shading, for double glazing (red), low-e glazing (orange), and solar control glazing (blue).

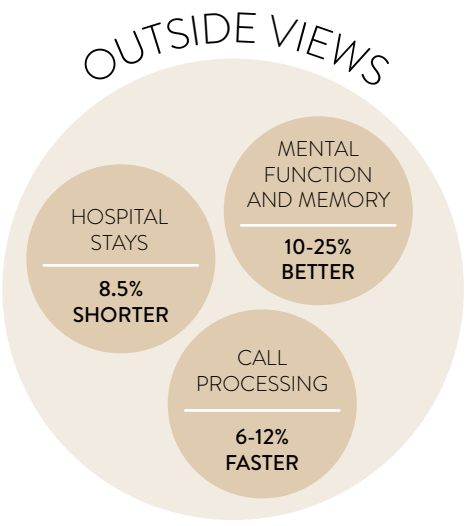
VISUAL COMFORT

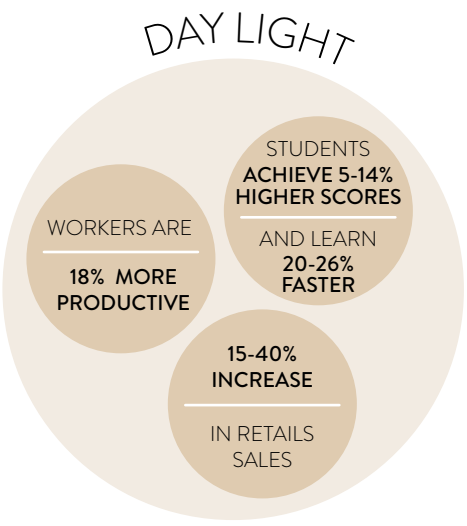
Glare is uncomfortable, distracting and at its worst can make office conditions impossible to work in. Dynamic shading systems regulate brightness, to maximize natural daylight while also reducing glare and contrasts. Tensioned roller systems can operate bottom up or at an angle to control both reflected and direct glare.

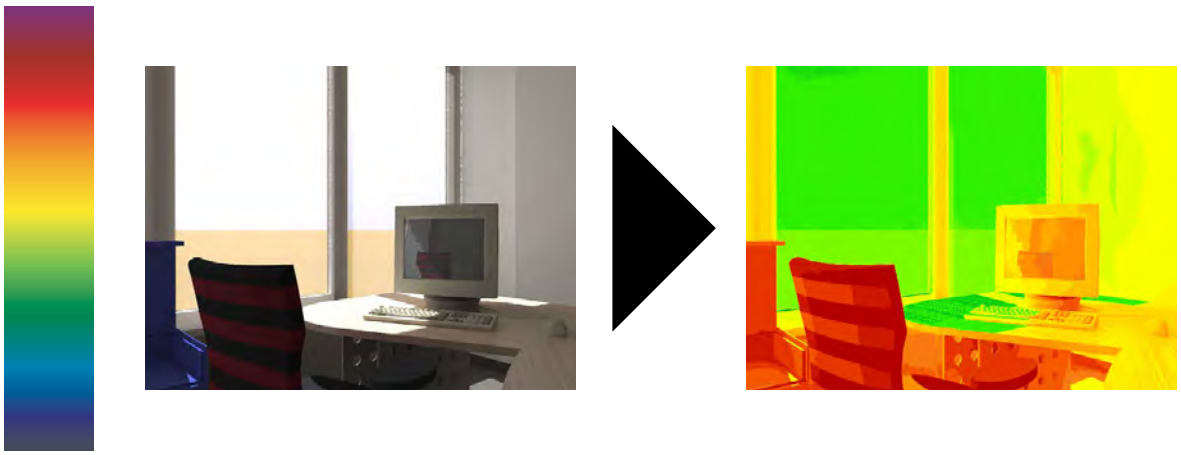


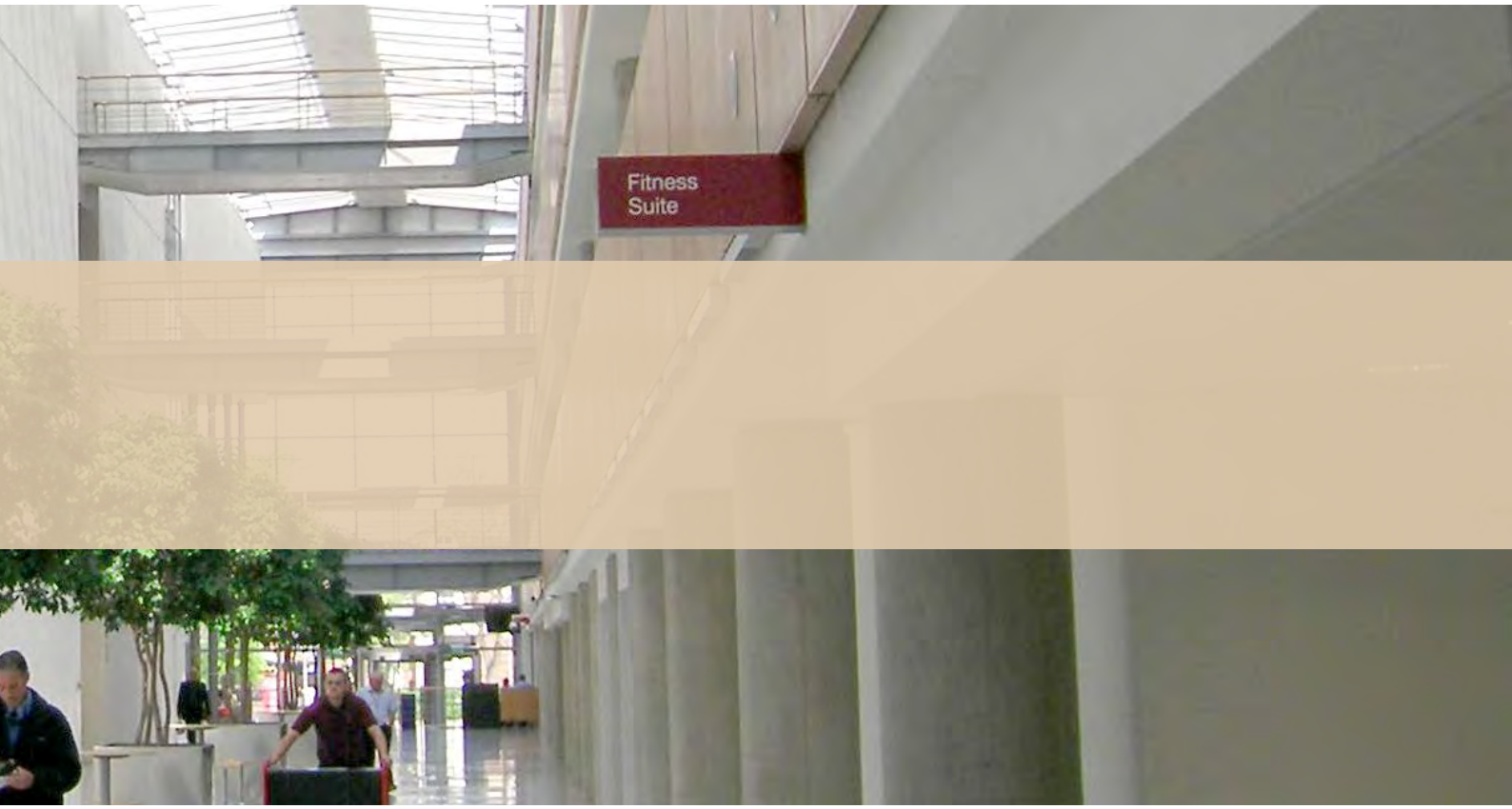
PRODUCTIVITY, HEALTH AND WELLBEING











DAYLIGHT AND VIEWS TO THE OUTDOORS

In just 50 years, we have moved from spending 90% of our waking hours outside, to spending 90% inside.

World Green Building Council research has proven the dramatic impact that natural daylight and views to the outdoors have on human behaviour and productivity (see figure x). A connection to the outdoors makes us healthier, helps us work better, and makes us happier. Dynamic shading combined with clear glazing is recommended as the most effective way to achieve low g-values without compromising the quality of light that enters the building.

PRACTICAL, INTELLIGENT ENGINEERING

Guthrie Douglas are a team of specialist engineers with the sole focus of creating technical shading systems for extraordinary spaces.

They are problem solvers, inventors, and sticklers for detail. 35 years of development, refinement, and testing have resulted in products that are trusted by many of the world's leading design teams and contractors.

They always aim to collaborate with architects and technical consultants as early as possible in the design process, to create a bespoke shading system that performs with precision, disappears into its surroundings when not in use, and amplifies the power of light and shade as architectural features.

They collaborate on projects of any size, and love nothing more than getting involved where engineering challenges are yet to be resolved. Their global project portfolio includes some of the world's most prominent buildings, but what excites them most is the next challenge. So please get in touch, we would be delighted to hear from you.

artisancollective.co.nz/shades

DESIGN SOMETHING EXTRAORDINARY