

sapa:

Architectural **Aluminium** Solutions



Elegance SC

Solar Control

Sapa Building System

Building Understanding

In an age of global warming, the reduction of carbon emissions is a key factor when both selecting materials for a building and how they will perform during its life-cycle, which is why the use of Aluminium is the right choice for any façade.

With primary production often taking place at source using hydro powered energy, and a worldwide recycling programme that makes it a fully sustainable material, aluminium enjoys an extremely low carbon footprint when compared to other materials of similar characteristics and technical properties.

The flexibility and integral strength of this extraordinary material allows the creation of both organic and ergonomic shapes to meet visual, practical and technical requirements.



Passive gain

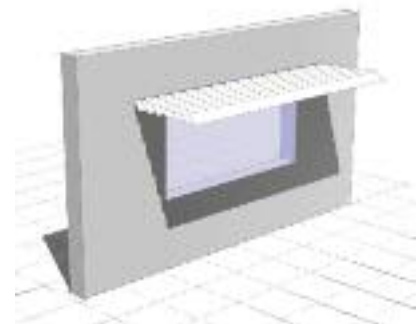
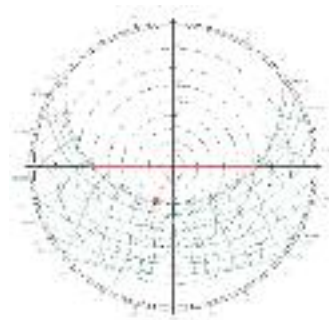
The Elegance SC Solar Control system has been developed to compliment Elegance curtain walling and meet the ever increasing energy demands put on the building façade.

The large expanse of glass achieved by curtain walling creates a greater surface through which the sun's rays can enter into the building. To prevent the building from overheating, high performance glasses can be used to reduce the transmission of radiation, however to achieve a comfortable internal temperature, cooling systems are generally employed.

On average, the monetary operational cost of mechanically cooling a building is three times more expensive than mechanically heating.

The introduction of the Elegance SC Solar Control system can significantly reduce the amount of solar radiation on the building façade and therefore reduce the amount of solar gain inside the building. The lower internal temperature reduces the necessity for mechanical cooling, thus cutting energy usage and operational costs. As a passive solar control solution with minimal maintenance, the Elegance SC system provides financial savings year upon year, whilst creating a more carbon efficient building.

Correctly positioned, the Elegance SC system can provide additional comfort to the building user by reducing solar glare from high solar altitudes during summer months, and by maximising the solar gains in the winter months to increase internal building temperatures from the low solar altitudes.





What does it all mean?

Solar gain is the increase in temperature of a space, object or structure as a result of solar radiation.

The amount of solar gain increases with the strength of the sun, but can be reduced by intervening materials with the ability resist the radiation. Objects struck by sunlight absorb the short-wave radiation from the light and re-radiate the heat at longer infrared wavelengths.

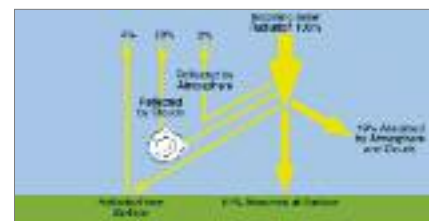
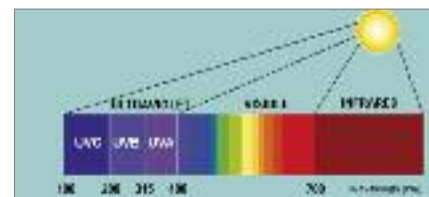
Where there is a material or substance between the sun and the objects struck that is more transparent to the shorter wavelengths than the longer, then when the sun is shining the net result is an increase in temperature – solar gain.

Solar Radiation is radiant energy emitted by the sun from a nuclear fusion reaction that creates electromagnetic energy.

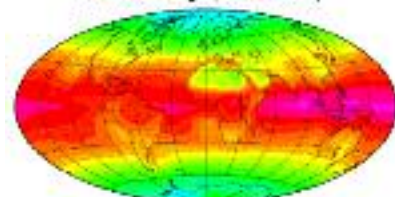
Whilst the term radiation conjures up negative thoughts, and prolonged human long exposure to UV radiation can be harmful, solar energy as a whole provides essential daylight and warmth that should be embraced and harnessed by any intelligent building design.

Insolation is the measurement of solar radiation on a surface. It is the amount of solar energy received over a given area in a given time. It is commonly expressed as watts per square meter (W/m²).

Solar Load is the amount of radiation passing through a vision area relative to the floor area of the space. The Solar Load is used to show the comfort level for the building occupant.



Solar Absorbed Minus IR Emitted
Annual Average (1985 - 1988)



Product overview



Terminology



1

- Horizontal Projecting Shading** is where there are a series of blades projecting directly out from the façade. This configuration works best on South, South-East or South-West facing elevations, although there can be some benefit on other orientations, dependant on the projection.

Generally a greater projection blocks more radiation, although for a South facing elevation, there is very little additional benefit by increasing the projection more than 0.8 times the window height.



2

For windows that are tall and narrow, increasing the width of the shading beyond the jambs of the window is more effective than increasing the projection of the shading.

For other elevations they are less effective unless a large projection is used.



3

- Horizontal Parallel Shading** is where a series of horizontal blades are mounted above one another and connect directly to vertical façade.

This configuration is the most effective at blocking radiation, although the amount of transmittance will depend on the angle and the set-out of the blades, as well as the amount of reflectance afforded by the colour. It can also block out a lot of day light too.

For South West and South East elevations, a blade angle of 0° will block out most of the incoming solar gain, whilst allowing for some view out too. On other elevations the blades will require a greater degree of tilt in order to block out solar gains.

- Vertical Parallel Shading** is where vertical blades project out either side of a window, or connected directly to the transoms on a vertical façade. For window applications, the blades should extend well beyond the top of the frame for the best results.

This configuration is most effective on the North elevation where the blades can block out most of the sunlight, but it also makes a useful contribution on the North-East and North-West.



Eco clip



With long term cost reductions being a major factor in the specification of shading systems, the Eco clip system has been developed to provide maximum shading to a façade, both in terms of area coverage and configuration options, whilst using simple profiles that are lightweight and inherently economic.

Fully integrated with the Elegance 52 curtain wall system, there are two blade types depending on your aesthetic preference.

The Eco clip system can be horizontally projecting to create a canopy shade, using a universal arm that is cantilevered or supported, depending on the amount of projection required.

Eco clip blades can be fitted beneath the universal arm (1) to create a continuous run of shading, or they can be fitted between the arms (2) to create a framed appearance.

The Eco clip system can also be installed horizontally parallel, either by directly fitting to the mullion feature cap (3) to create a continuous run of shading, or by fitting between the mullion feature caps (4).



Preparation of the system has been kept simple with square cut joints and universal fixings, whilst the clip method of assembly means that installation is quick, easy and safe thanks to a security locking pin.



The system is supplied stick-form in lengths that are easy to manage, which lessens the risk of damage and at the same time reduces transportation costs.

Product overview



Aero clip



With shading devices mounted externally, the aesthetics of a system play a crucial role as the visible profiles become a focal point of the building envelope. The flexible Aero clip system has been developed to provide suited solutions for all applications, with an emphasis on eye catching design.

Not just good looking, the wing shaped blades create an illusion of slenderness when viewed from the ground, whilst at the same time providing a large shaded areas perpendicular to the intense solar angles.

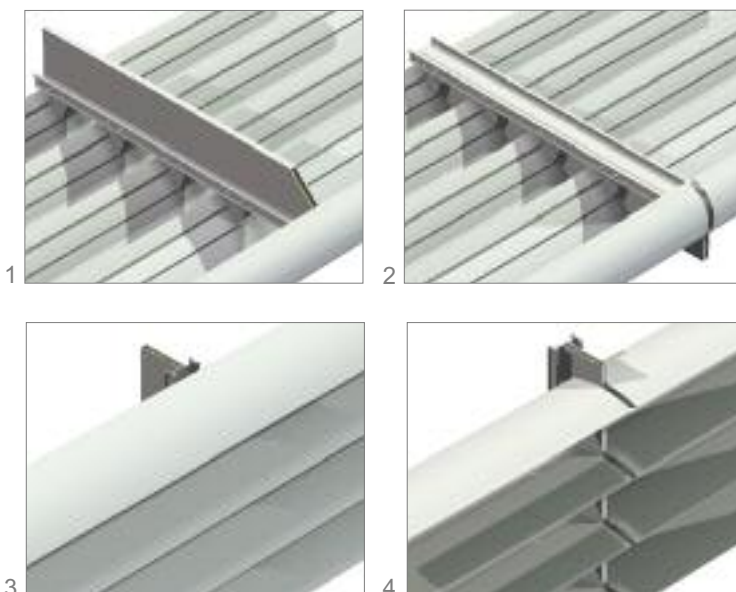
Three depths of blade together with a complimentary bull-nose profile have been engineered to span greater distances between fixing points, which reflects the increased module widths demanded of today's curtain wall.

The Aero clip system can be horizontally projecting to create a canopy shade, using a universal arm that is cantilevered or supported.

Aero clip blades can be fitted beneath the universal arm (1) to create a continuous run of shading, or between for a framed look (2).

The Aero clip system can be horizontally parallel, either by directly fitting to the mullion feature cap (3) to create a continuous run of shading, or by fitting between the mullion feature caps (4). It can also be vertically parallel, either by directly fitting to the transom feature cap to create a continuous run of shading, or by fitting between individual transom feature caps.

Preparation of the system has been kept simple with square cut joints and universal fixings, whilst the clip method of assembly means that installation quick, easy and safe thanks to a security locking pin.





Side-arm



We have recognised that designers require the freedom to create their own shading configurations for both technical and visual reasons. The Side-arm system is a range of blade profiles that can be used to create any shading configuration.

With blades ranging from 100 to 800mm, frames or cassettes can be fabricated using bespoke laser cut side arm plates to capture the required arrangement, with each blade connected to the side arm using universal fixings.



1



2

The frames or cassettes can be connected to the Elegance 52 curtain wall using an engineered heavy duty fixing bracket. Alternatively it can be connected to the building structure via a steel stub, provided by the main contractor in accordance with details from their structural engineer in relation to the applicable loads for the particular project requirements.



Right Product

The chart on the reverse page will help you identify at a glance, which variant of the Elegance SC system can be used on your application, however finding the right product for a specific project's requirement is where our Project Consultants come into the picture.

Working with Sapa's in-house Technical Support team, our Project Consultants can provide UK specifiers with critical, specialist advice concerning the correct application of products across a variety of project types including maintenance and safety.

1. Horizontally Parallel
2. Vertically Parallel

	Horizontal Projecting		Horizontal Parallel				
	Continuous	Intermittent	0° Continuous	0° Intermittent	45° Continuous	45° Intermittent	Vertical Parallel
Eco clip							
Z Blade	●	●			●	●	
C Blade	●	●			●	●	
Aero clip							
100mm Blade	●	●	●	●	●	●	●
150mm Blade	●	●	●	●	●	●	●
200mm Blade	●	●	●	●	●	●	●
Side-arm							
200mm Blade		●		●		●	●
340mm Blade		●		●		●	●
400mm Blade		●		●		●	●
420mm Blade		●		●		●	●
500mm Blade		●		●		●	●
600mm Blade		●		●		●	●

 Horizontal Projecting
 Horizontal Parallel

Sapa Building System

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