



**SMART-TINTING** GLASS SYSTEM

HALIO™  
by AGC

## LIVING WITH LIGHT

We all have an intrinsic affinity for natural light. It is an essential ingredient of life and indispensable for our wellbeing. We also tend to gravitate towards sources of natural light in our places of work and our interiors. This explains why glass is such a compelling element in many great contemporary architectural creations. The ability to fully master the phenomenon of natural light is essential to their success.

A first-ever technological breakthrough is paving the way for more precise control over daylight, not only enhancing the comfort, privacy, and energy-efficiency of our spaces, but opening up whole new possibilities for using and inhabiting them. Introducing the world's most advanced system for controlling natural light: Halio™.

HALIO™  
living with light





[ As an architect, you work with  
**light and shade**, as  
that is what describes the space.  
You cannot shape space without  
taking light into consideration. ]

*Kjetil Thorsen  
Co-Founder of Snohetta*

# A UNIQUE EXPERIENCE

## SIMPLY BEAUTIFUL

Halio is a smart-tinting glass that delivers unprecedented control over penetrating natural light. This without compromising on the beneficial qualities of conventional glass. **Halio's perfectly neutral and transparent aspect allows a maximum of natural light to penetrate our spaces.** When tinted, it takes on an elegant, neutral colour. **Halio's exceptional colour rendering index above 90% invites the beauty of your surroundings right inside.**

Halio transitions from a clear to a dark tint, and back again, in a smooth and uniform manner.

Halio gives architects the freedom to design buildings with clean and harmonious lines without the need for blinds, shading systems, or other forms of invasive solar protection. It removes the constraints that stand in the way of truly inspiring architectural creations. **Placing the beauty of glass once again at the heart of the design.**





## THE ULTIMATE IN COMFORT

Halio welcomes natural light into our interiors, transforming the spaces we inhabit into havens of light. **When that light becomes too imposing, Halio darkens to allow in the exact amount of light we need: ranging from subtle tints to almost entirely opaque. And the transition occurs in complete silence...**

The notion of comfort is also linked to protection from excess natural light. **To provide an optimal level of living and working comfort, Halio blocks the glare of direct sunlight and reduces the amount of solar energy entering our interiors.**

**Halio preserves our connection with the outside world so we can enjoy invigorating views without any visual constraints.**

Halio also offers a variety of options for interior applications. It offers indoor nearly privacy whenever needed and however required.

*Alexandria Real Estate (NYSE: ARE) installed Halio smart tinting glass in their San Francisco offices to demonstrate its ability to deliver privacy on demand. Photo courtesy of Kinestral Technologies, Inc.*



[ Windows are the primary interface between the office worker and the external natural environment. As such, they provide a simple way of giving people the **connection to nature** that they need in order to avoid the discord associated with environments devoid of nature. ]

*B. Browning & C. Cooper (2015),  
The Global Impact of Biophilic Design  
in the Workplace.*

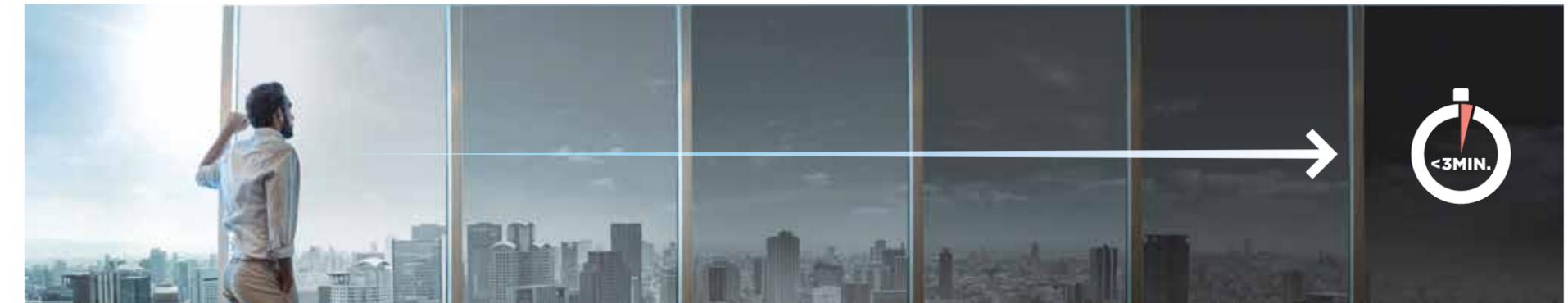


[Halio fully tints  
in less than  
3 minutes!]

## RESPONSIVE TO YOUR NEEDS

Each occupant can set their own level of comfort and regulate the amount of penetrating light with incredible precision. Window by window or room by room, whenever and however they wish.

**Halio can transition from its most transparent to its darkest state in less than 3 minutes.** The transition itself is already detectable within 20 seconds. Best of all, Halio's transition can be interrupted at any point to assume any intermediary level of transparency.



Experience Halio for yourself:  
[www.halioexperience.com](http://www.halioexperience.com)



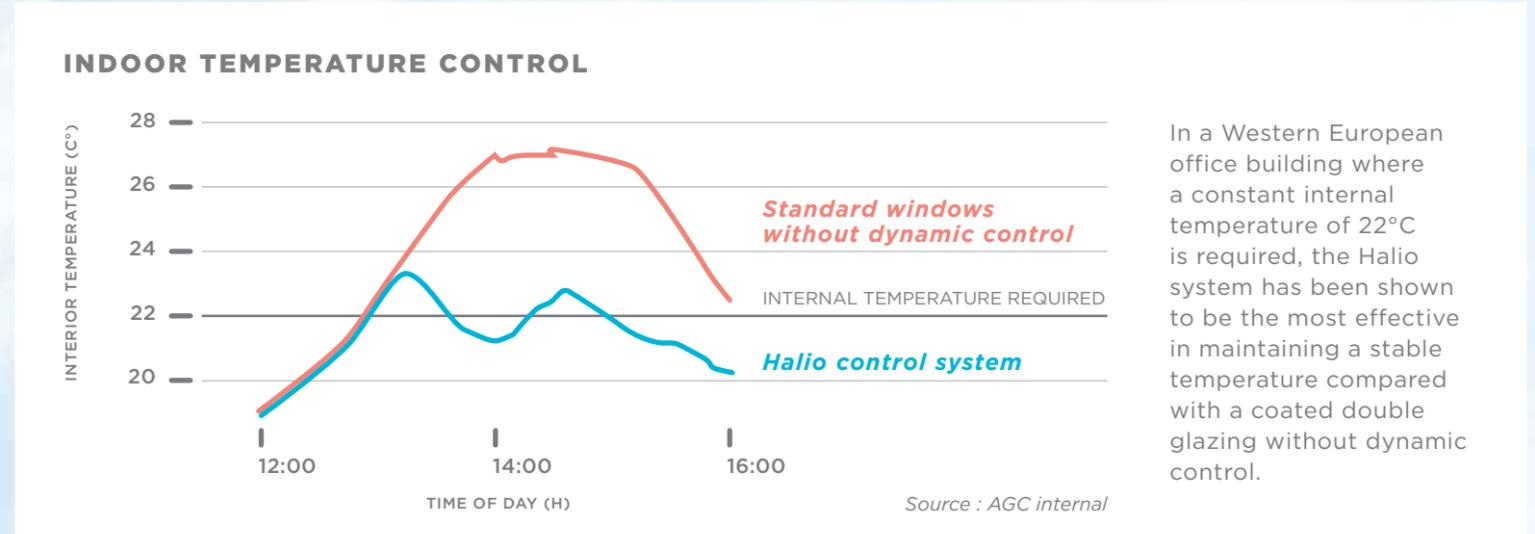
## INTELLIGENT DESIGN

Halio is very easy for the end user to control thanks to its intuitive wireless interfaces: either via a simple keypad, a mobile app, or voice commands. It can be easily integrated into existing building management systems (BMS) infrastructure or home automation systems.

Thanks to proprietary algorithms, Halio can be programmed to automatically adapt to specific building requirements. It takes various parameters into account such as the function, location, and orientation of the building as well as local weather conditions.

Halio comes with a centralised, remote management system that allows the user to monitor the status of all system components in real time, thus enabling either automated, proactive and predictive operation.

**Thanks to Halio, building information can be processed to ensure continuous improvement or optimised performance throughout the system's entire lifecycle.**



In a Western European office building where a constant internal temperature of 22°C is required, the Halio system has been shown to be the most effective in maintaining a stable temperature compared with a coated double glazing without dynamic control.



# INCREASED BUILDING VALUE

Opting to integrate Halio into your façade is choosing to have total control over natural light, uninterrupted views of the surrounding landscapes, unparalleled interior comfort, superior design, and improved levels of energy efficiency.

Halio incorporates the very latest technological advancements, is protected by no fewer than 56 patents, and adds significant value to the building in terms of both rental and resale price.

- 
 The savings on **energy, heating, ventilation, air conditioning, and artificial light** can be as much as 22%.
- 
 Installing Halio can, depending on the buildings parameters, contribute up to:
  - **39 LEED building certification points** for your building across 7 categories;
  - **49 BREEAM building certification points** across Innovation and 4 other categories.
- 
 Halio complies with **all prevailing norms** for laminated glass, insulating glazing, dynamic panels, electrical conductivity, electromagnetic compatibility, and environmental standards, thus reconciling the constraints of design and regulatory compliance.
- 
 Halio requires **half the amount of maintenance** of conventional shading systems.



## PRODUCT SPECIFICATIONS

		Halio double glazing (*)	Halio Black double glazing (*)
<b>Clear state</b>	Light transmission	66%	52%
	Solar factor	45%	35%
	External light reflection	15%	17%
<b>Tinted state</b>	Light transmission	3%	0.1%
	Solar factor	5%	4%
	External light reflection	6%	6%
<b>Colour Rendering Index (%)</b>		> 90	> 90
<b>Ug value (EN 673)</b>		1.1W/(m²K)	1.1W/(m²K)
<b>UV transmission (EN 410) (%)</b>		0%	0%
<b>Transition speed</b>		< 3 minutes	< 3 minutes
<b>Power</b>	Operating voltage	48V	48V
	Power consumption during transition	14W	28W
	Power consumption at rest	1W	2W
<b>Warranty</b>	Laminated glass	10 years	10 years
	Dynamic function	10 years	10 years
	Electronic control	3 years	3 years

(\*) Double glazing: 10-mm Halio or Halio Black laminated on extra-clear Planibel Clearvision glass, 15-mm spacer, 4-mm extra-clear Planibel Clearvision glass with an iplus Top 1.1 thermal insulation coating in position 3.



Ready to immerse yourself  
in the Halio experience?

visit [www.halioexperience.com](http://www.halioexperience.com)



HALIO™  
by AGC



**Contact us to discuss  
your project and Halio:**

[halio@eu.agc.com](mailto:halio@eu.agc.com)

[www.haliolife.com](http://www.haliolife.com)

**AGC GLASS EUROPE**

Avenue Jean Monnet, 4

1348 Louvain-la-Neuve

Belgium

HALIO™  
by AGC