



Systems Specs
Data Sheets & Drawings

Electrochromic Glass
SageGlass

www.greenliteglass.com | +1 778 285 8530 | info@greenliteglass.com

vetrotech
SAINT-GOBAIN

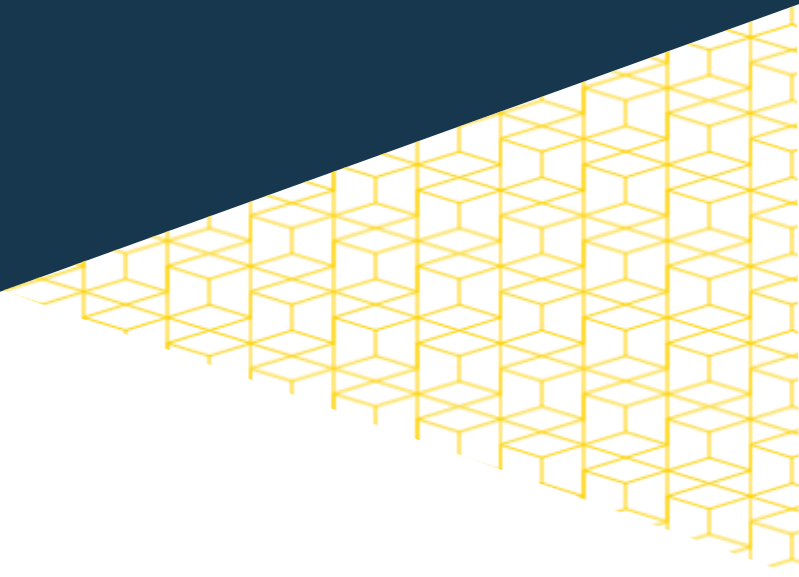
 SageGlass[®]
SAINT-GOBAIN

PRIVA-LITE[®]

LITEFLAM[®]



How Does it Work?





SageGlass Product Details



What's in the Glass?

Our insulating glass unit (IGU) and what makes SageGlass dynamic.

Outboard Lite

Outboard lite can be customized with different coatings and come in different thicknesses based on project needs.

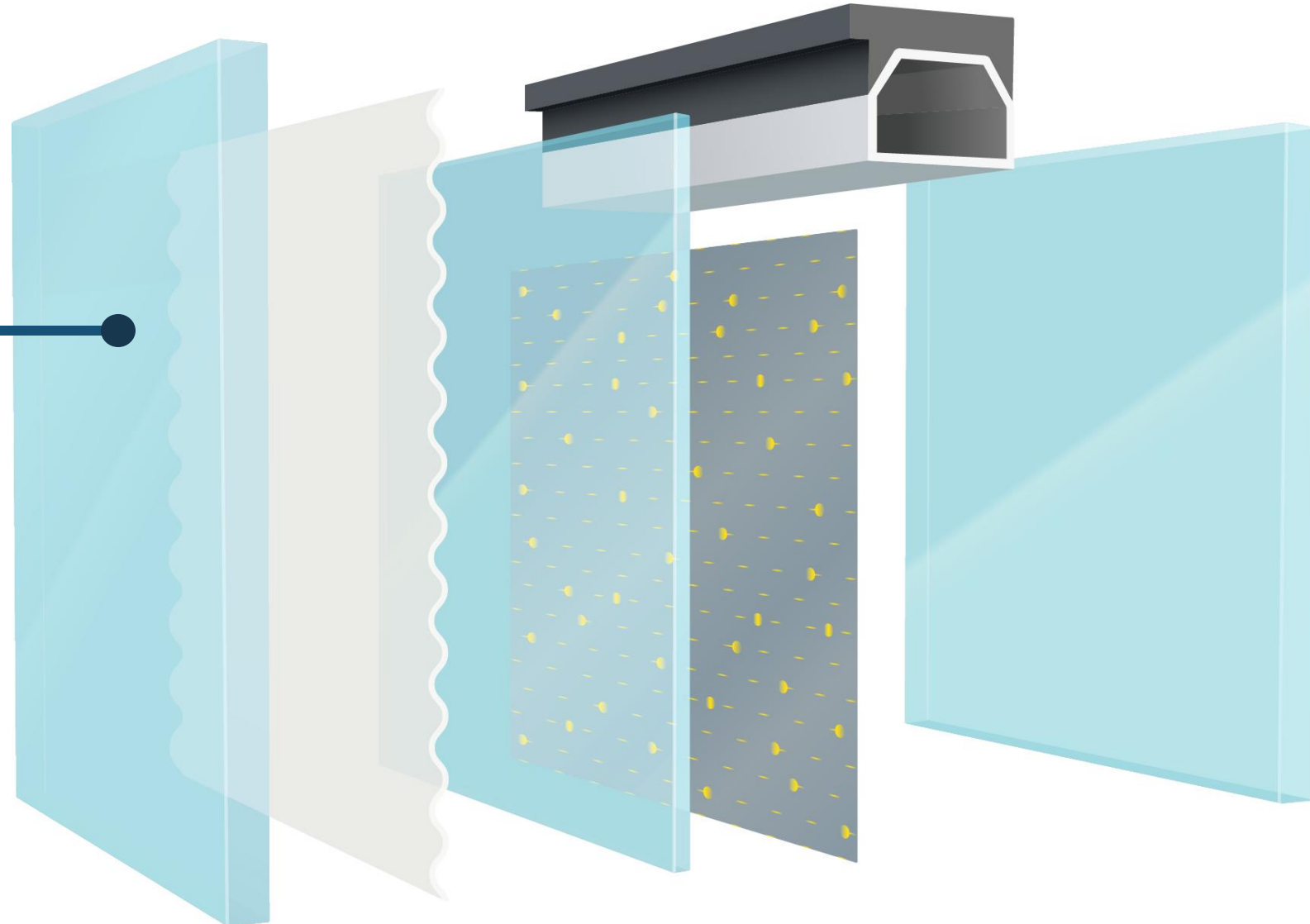
Interlayer

EC Coated Lite

EC Coating

Cavity

Inboard Lite



What's in the Glass?

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Outboard Lite

Interlayer

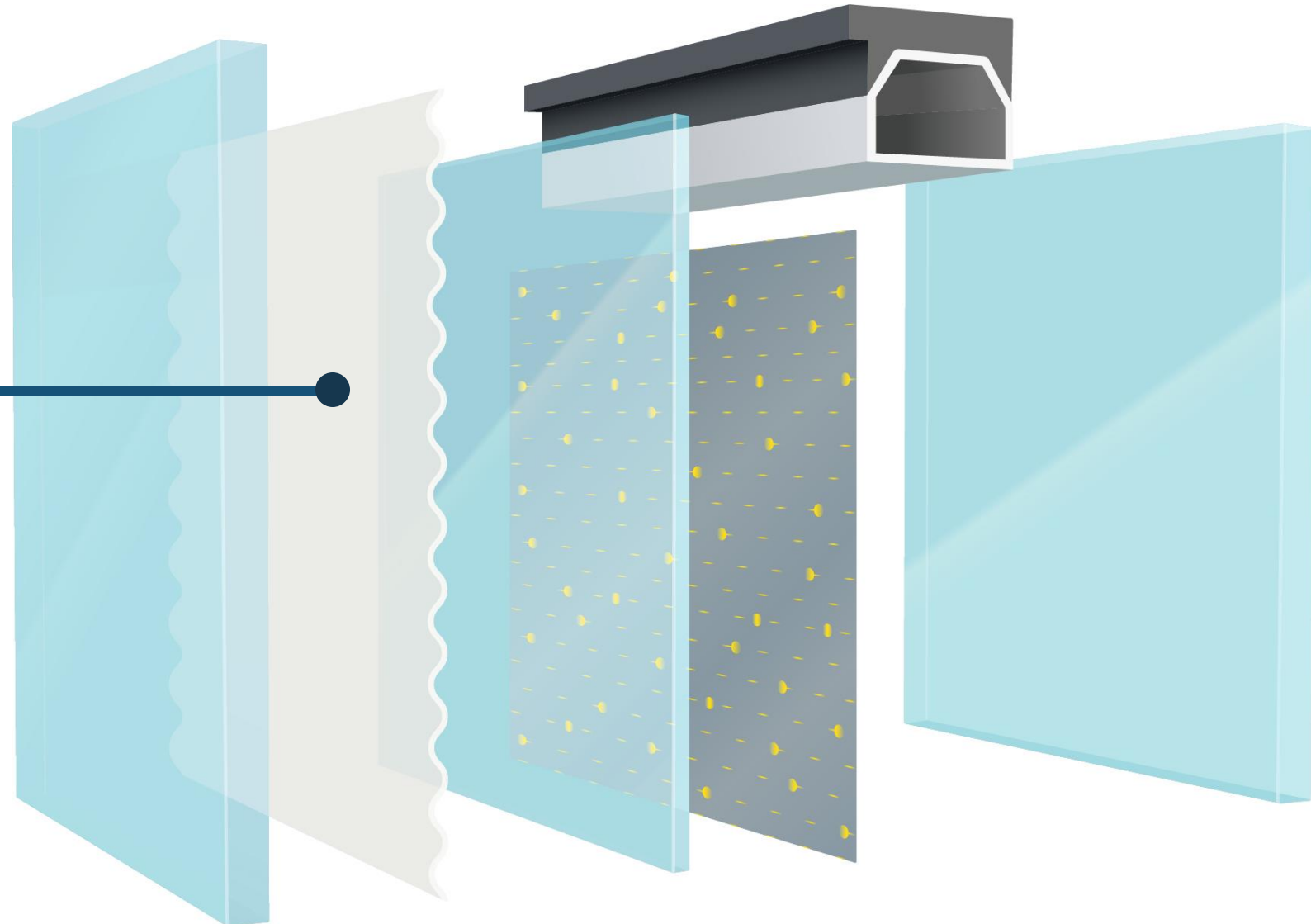
An interlayer laminates our Outboard Lite to the EC Coated Lite.

EC Coated Lite

EC Coating

Cavity

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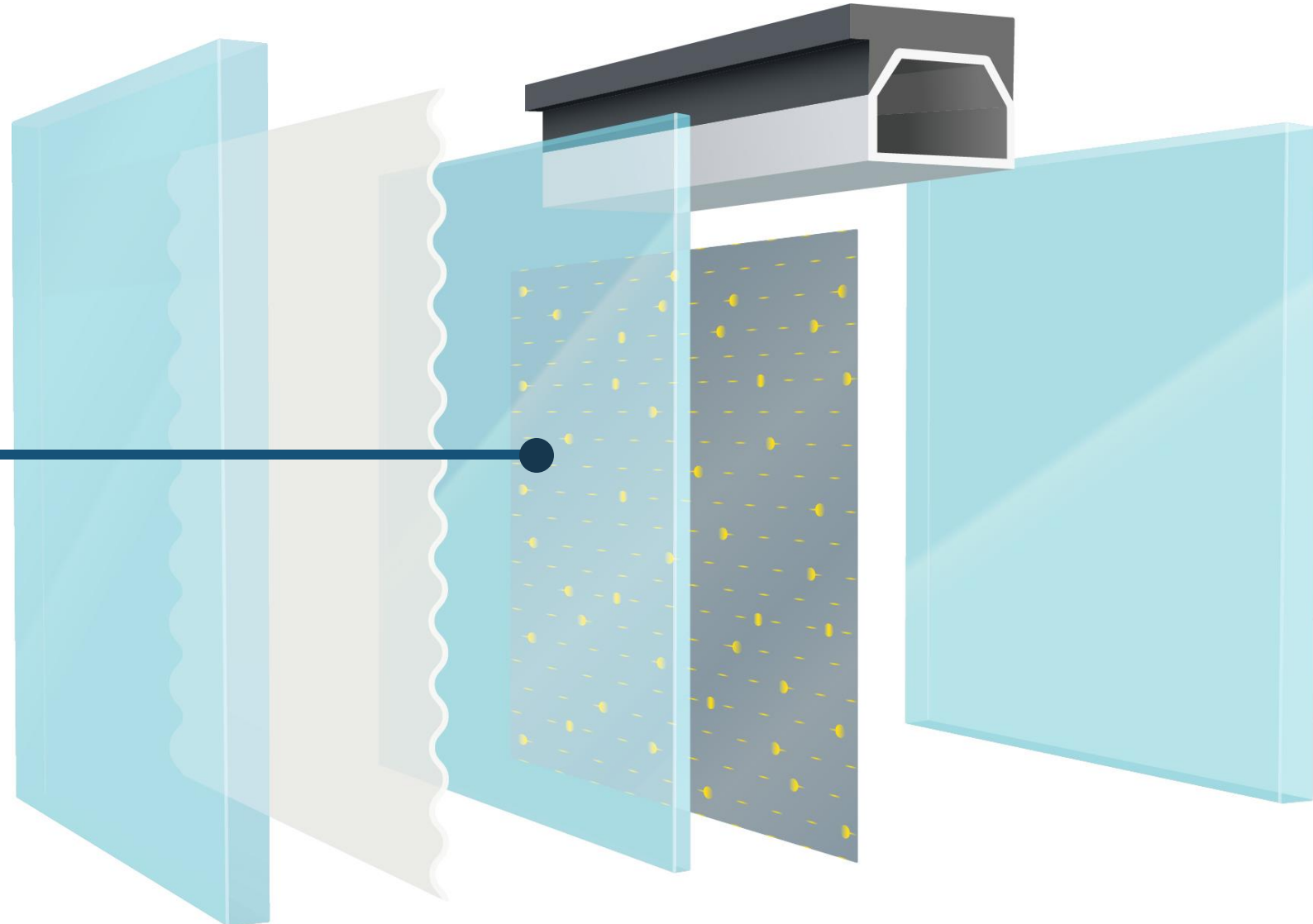
EC Coated Lite

Electrochromic layers are sputter coated onto 2.2 mm annealed glass.

EC Coating

Cavity

Inboard Lite



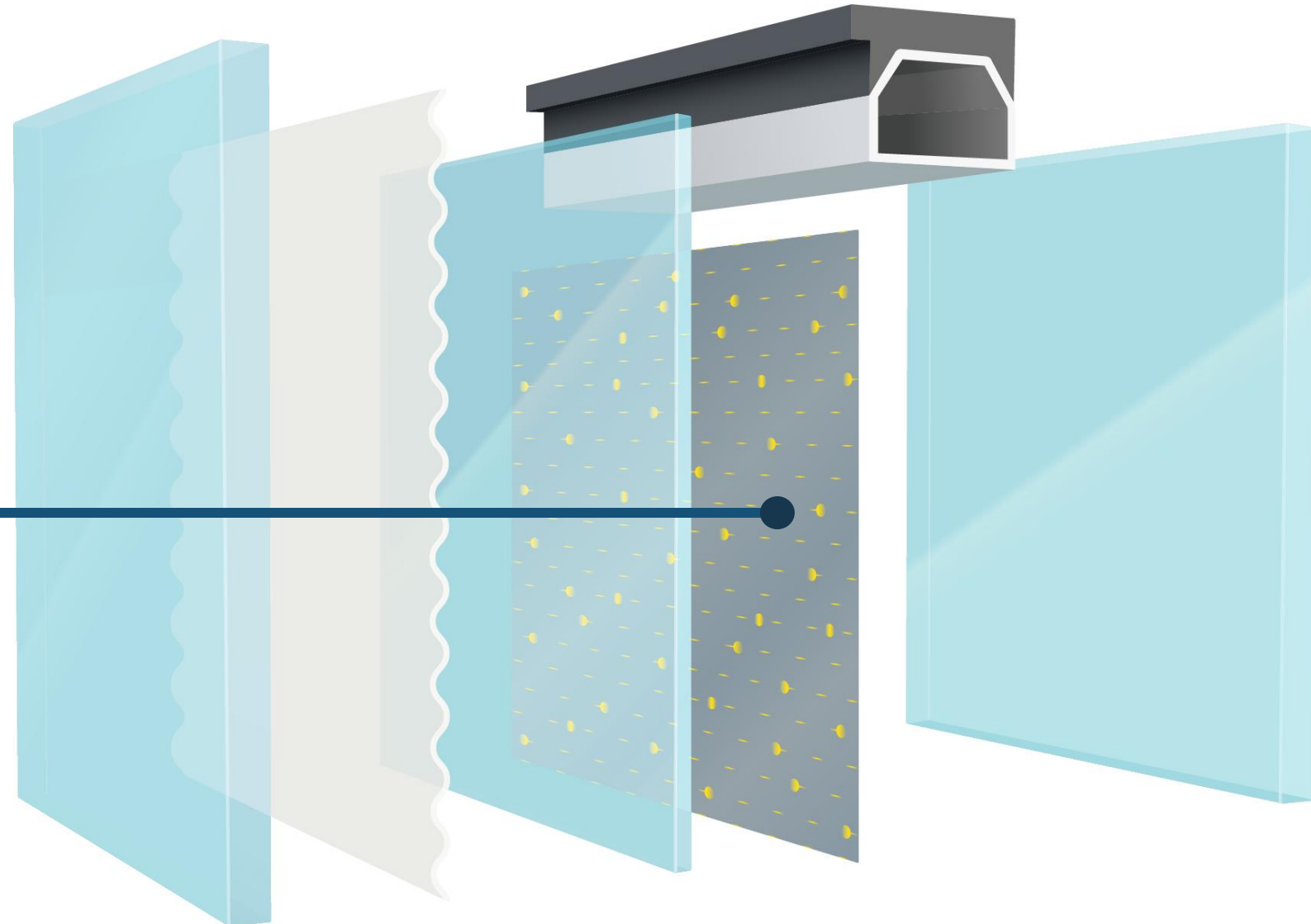
What's in the Glass?

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Outboard Lite
Interlayer
EC Coated Lite
EC Coating

The electrochromic coating is comprised of multiple layers of metallic elements that can dynamically modulate the visual light transmittance (VLT) and solar heat gain coefficient (SHGC) of the glass by application of a small electrical charge.

Cavity
Inboard Lite



What's in the Glass?

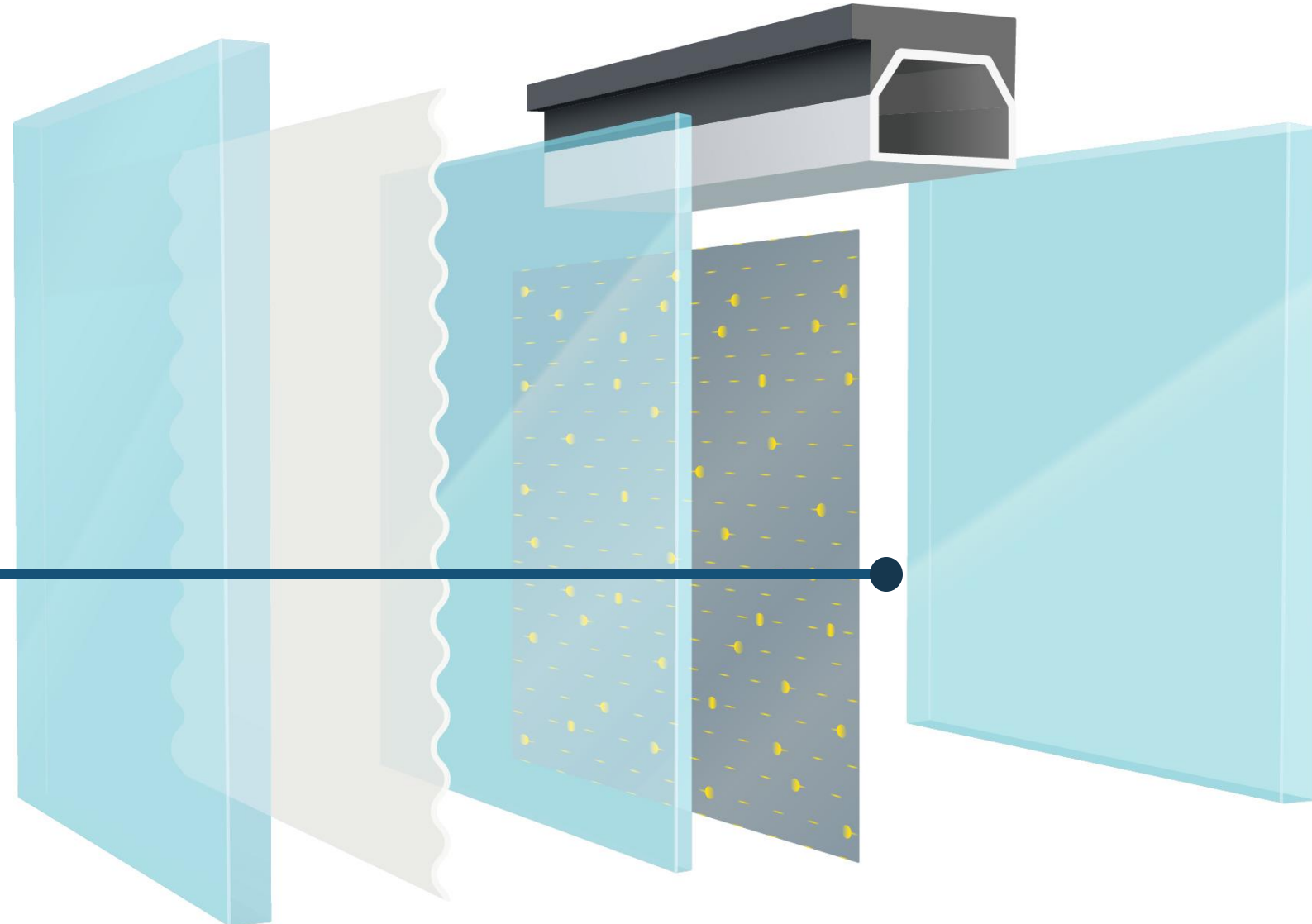
Our insulating glass unit (IGU) and what makes SageGlass dynamic.

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EC Coating

Cavity

We use a stainless steel warm edge spacer and industry-standard PIB and Silicone sealants, adding Air, Argon or Krypton based on performance needs.

Inboard Lite



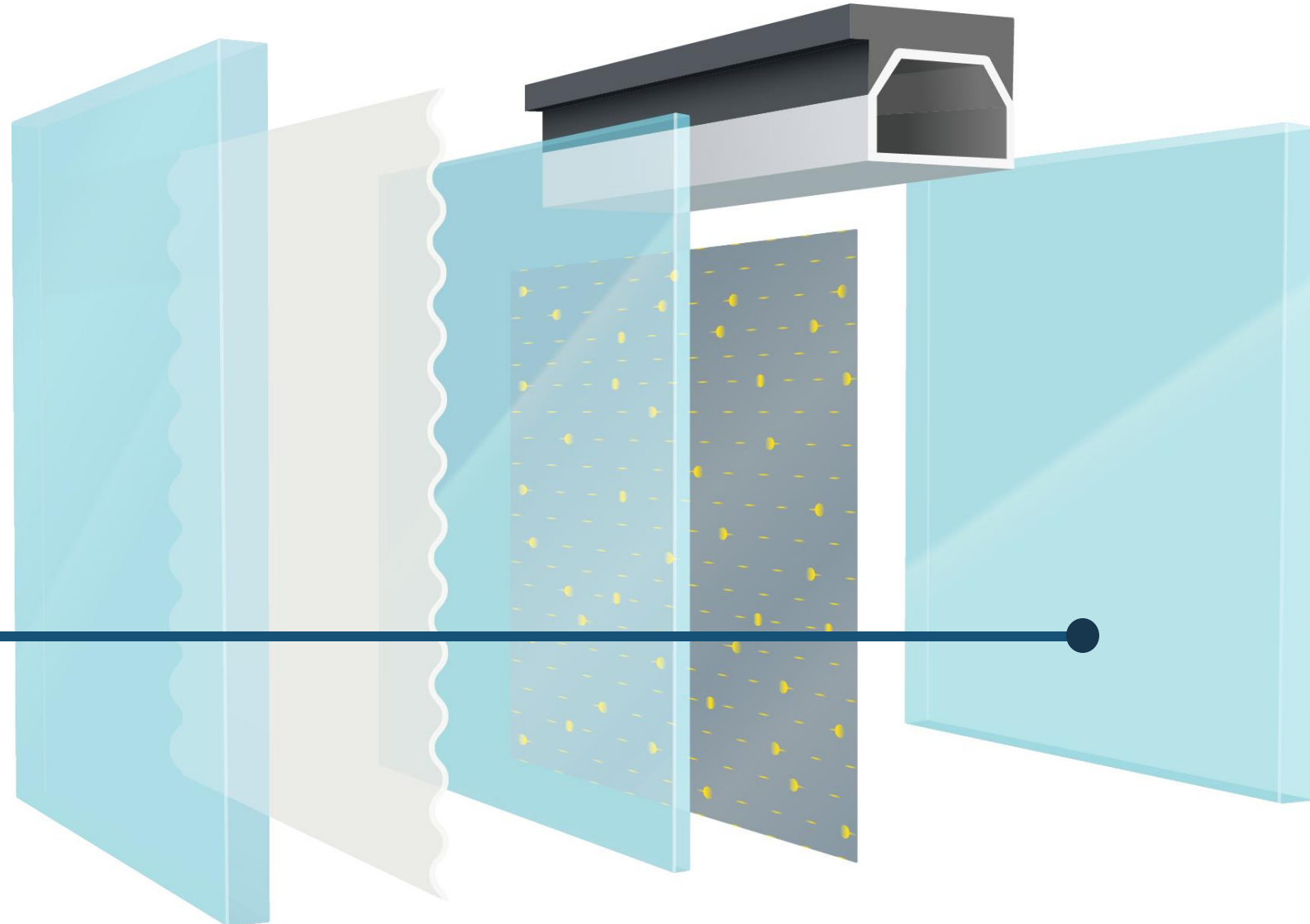
What's in the Glass?

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Inboard Lite

The inboard lite of the IGU can have additional Low-E coatings and laminates based on project performance needs.



Traditional EC Glass...the “tinted wall” effect

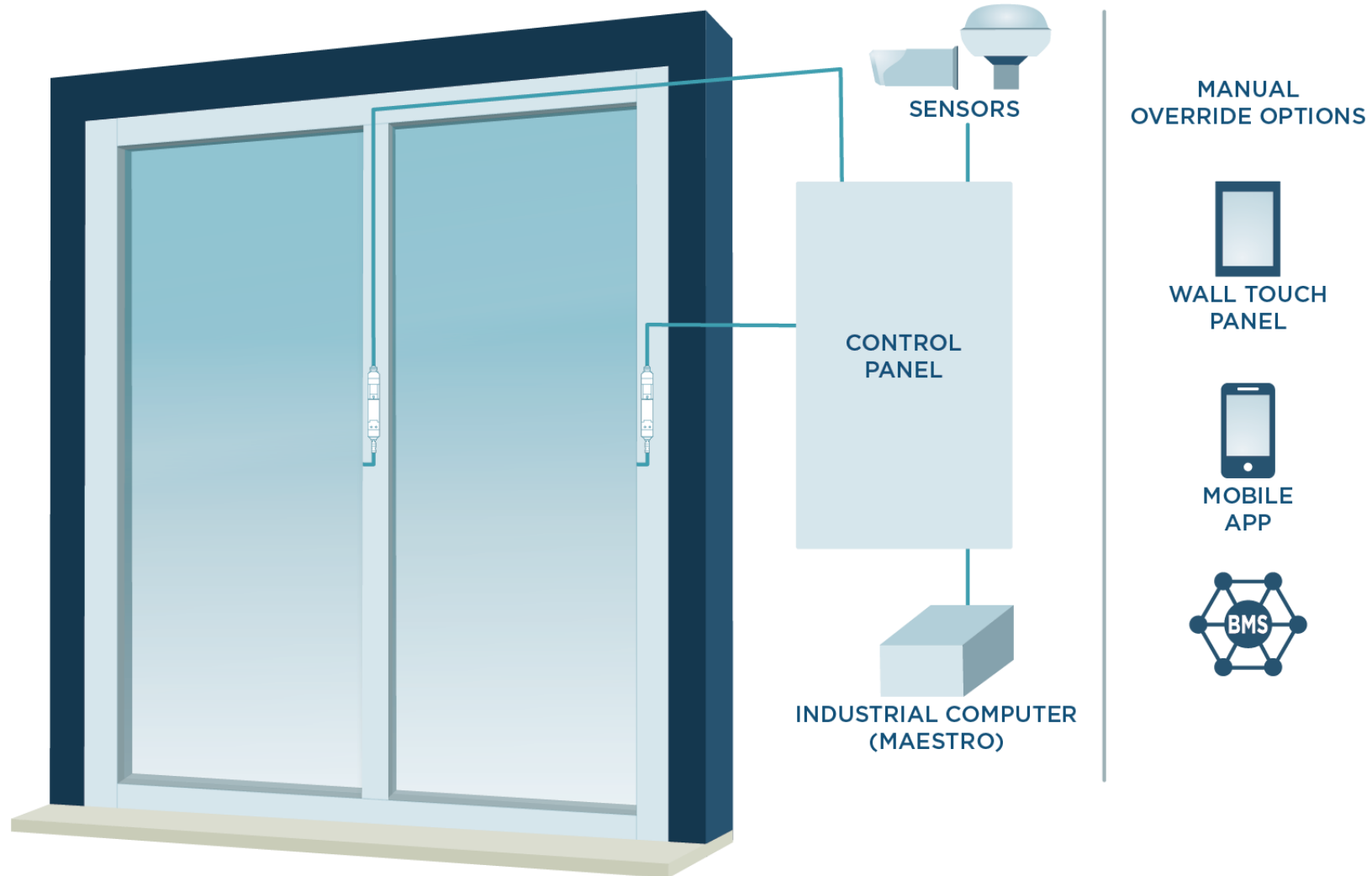


Less Blue, More Daylight = Better Experience



SageGlass Symphony[®] control system overview

Tints automatically in response to the sun



SageGlass Operates with a simple Mobile App



Control Glass in Your Building,
Anywhere in the World

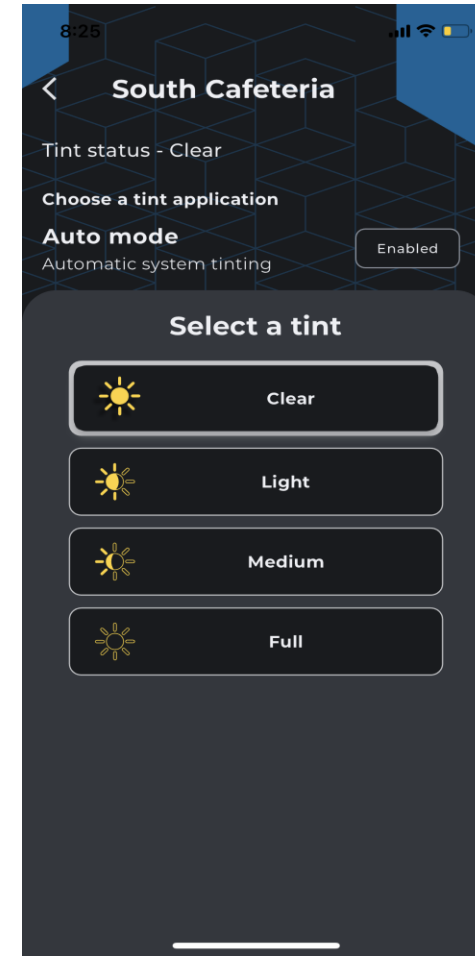
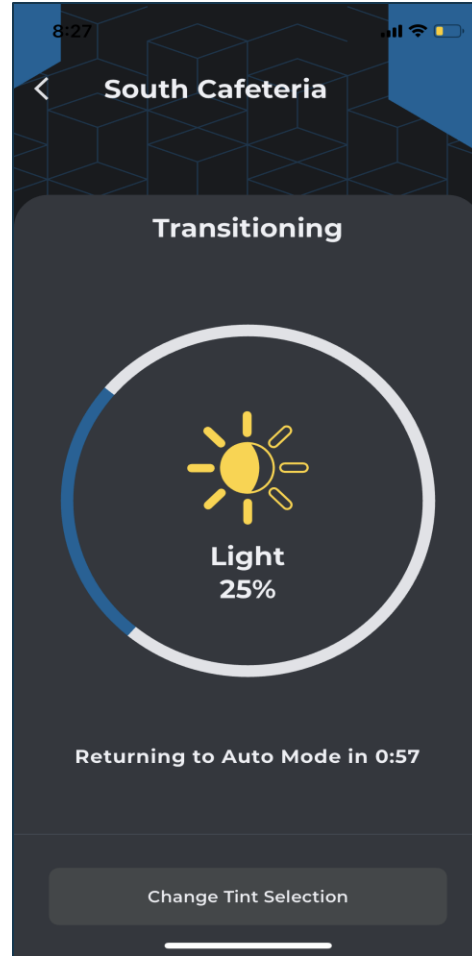
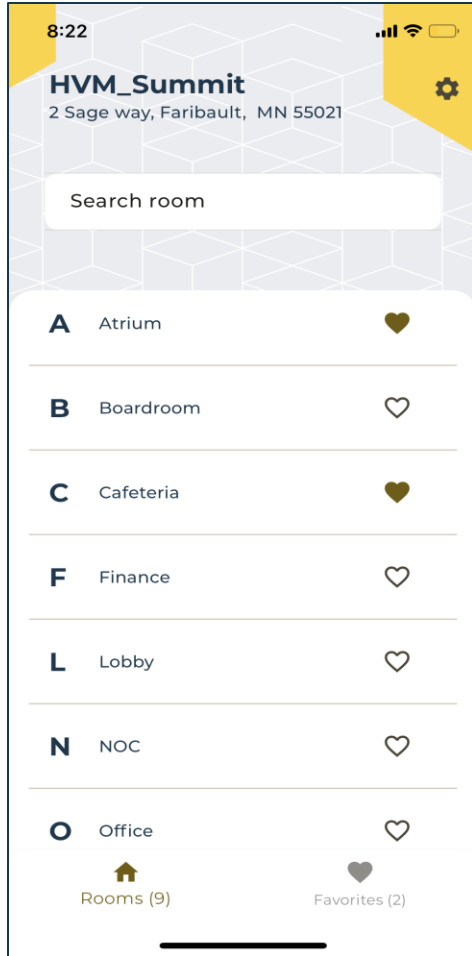
Easily Navigate Any Size Space with
Favorites and Search Functionality

Only Company to Provide Percent
Progress to Glass Transitioning

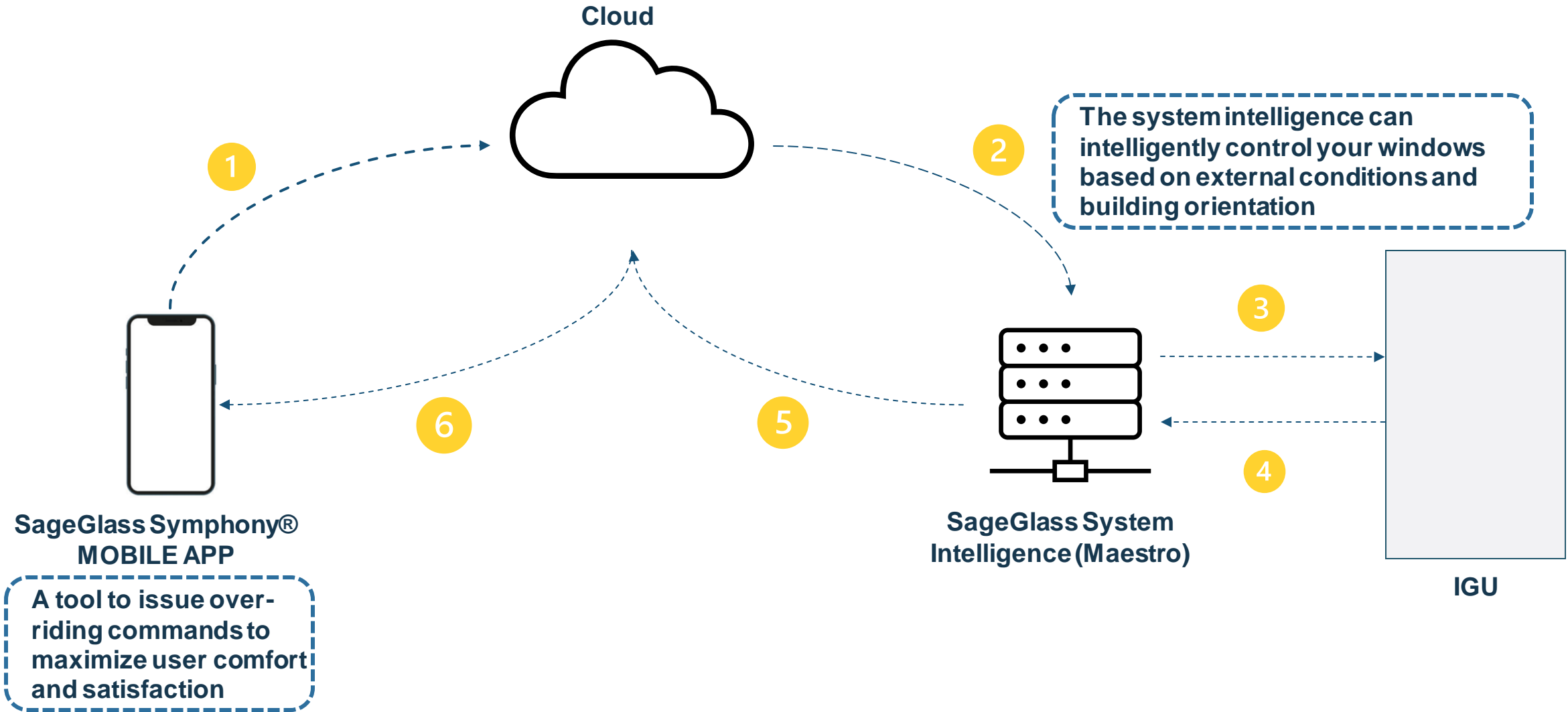
Adjust the Duration of Tints to Shade
Your Meeting or Cool the Building All
Day

Manage Multiple Buildings and
Premises with Adjustable Default
Locations

Sleek interface, greater occupant satisfaction



How It Works



What are the requirements?

	No Internet Required	Cell Modem	Vendor Provided Internet	Notes:
Symphony Automated Mode	X			Maestro automated operation of the SageGlass system requires no internet connection and is also a core piece of the value prop.
Wall Touch Panels	X			WTPs allow for manual commands to SageGlass with no internet connection needed
SageGlass Initial Commissioning		Minimum Requirement		While possible to use a customer-provided internet connection, typically commissioning occurs before internet is active so we employ a cell modem to bridge this gap.
SageGlass Support and Troubleshooting		Minimum Requirement	Preferred Option	Continued support and issue troubleshooting of the SageGlass system requires an enabled remote connection using outbound internet
Symphony Mobile App / Portal		Minimum Requirement	Preferred Option	The Symphony mobile app is cloud-integrated, meaning app-based control requires a persistent internet connection. We recommend a vendor network for optimal performance.
Symphony Data Logging			Minimum Requirement	The data consumption requirements associated with remote logging for diagnostics and support exceed what is possible with a cell modem meaning a direct network is required.
BMS / BACnet Integrations to Maestro	X			Our system integration into BACnet clients is supported locally and does not require an internet connection to our system

SageGlass Performance



Maximum sunlight

CLEAR



Save energy and reduce moderate glare

LIGHT



Strong heat and glare protection

MID



Maximum glare control

FULL

	CLEAR	LIGHT	MID	FULL
VISIBLE LIGHT TRANSMISSION	60%	18%	6%	1%
SOLAR HEAT GAIN COEFFICIENT	.41	.15	.10	.09
UV TRANSMISSION	0.4%	0.2%	0.1%	0.0%
U-VALUE	.28	.28	.28	.28

SageGlass- Final test process

Measuring every IGU

- Only EC company wholly owned by a global leader in construction materials
- Significantly more global project experience than any other EC company
- Unparalleled IGU and coating expertise
- IGU fabricated in-house with proprietary EC specific QA measures that other IGU fabricators are not experienced with



100% of IGUs are tinted and cleared repeatedly over 40 hours. Only those that pass this inspection are shipped to our customers.

Global experience does matter

IGU Global Certifications and Standards	SageGlass
Insulating Glass Certification Council (IGMA/IGCC) ASTM E2188, E2189, E2190	<ul style="list-style-type: none"> •
Safety Glazing Certification Council (SGCC) ASTM C1036, C1048, C1172	<ul style="list-style-type: none"> •
European Union CE Marking EN 572, 1863, 12150, 1096, 14449, 1279; ETA 10/0362	<ul style="list-style-type: none"> •
Centre Scientifique et Technique du Bâtiment (CSTB) FD DTU 39P1, 39P3, 39P4, 39P5, RT2012	<ul style="list-style-type: none"> •
allgemeine bauaufsichtliche Zulassung (abZ) DIN 1288, 18008, 52338	<ul style="list-style-type: none"> •

Univ. of Oregon Harmony Study

Pre-publication study results (CONFIDENTIAL)

Cell 1- SAGE Classic



Cell 2 – SAGE Harmony



Cell 3 - Baseline



Cell 4 - Micro Shade



“Across all parameters and outcomes investigated, there was a positive and **significantly better performance** of the gradient-tinted electrochromic glazed façade. There were **sizeable improvements** in visual comfort, thermal comfort, and circadian light entrainment over all other glazing technologies tested.”

Improved Exterior Aesthetics



Keystone Properties 1K1 Renovation

Before and After SageGlass Harmony w/Bright Silver



Predictive Automated Tinting





SageGlass Support

Every Step of the Way

Insert PM name and headshot



DESIGN

- Controls plan
- Wiring diagram
- Software configuration

INSTALLATION

- GC engagement
- Glazier training
- Electrician training

START-UP

- Component testing
- System QA
- Occupant training

TUNING

- User feedback
- System adjustments
- Ongoing support

Customer Success and Field Operations

Ensuring customer success every step of the way

CUSTOMER SUCCESS MEETING

- Help define occupant goals and needs for automated and manual control
- Provide training on how to interact with the system
- Design best practice sharing

TECHNICAL SUPPORT

- Construction Manager engagement
- Glazier training
- Electrician training
- Pre-construction meeting support

USER EXPERIENCE

- Deliver occupant training
- Obtain building management and occupant feedback on system operation post-occupancy
- Fine-tune system parameters to ensure occupants are happy with performance



SYSTEM ARCHITECTURE

- Controls plans
- Wiring diagrams
- Window zoning drawings

SYSTEM START-UP

- Quality assurance of automated and manual controls
- Tint behavior validation
- Custom settings validation



Field Operations Team



Where would people rather be?



Brandywine Life Sciences Mockup



Full pane tinting sacrifices daylight

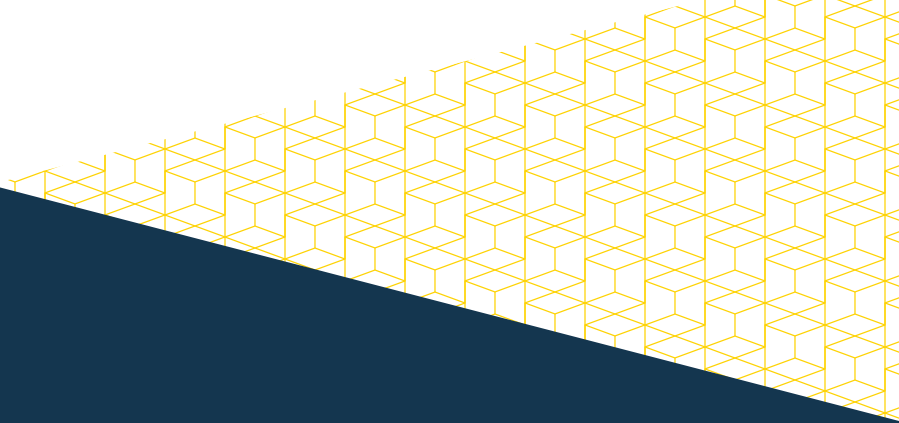
High interior reflectivity makes it harder to see outside when tinted

SageGlass Harmony w/Bright Silver

Halio

View G4

Static Glass



Learn more at [SageGlass.com](https://www.SageGlass.com)



1-778-285-8530

Info@greenliteglass.com

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