
ELECTRO CHROMIC GLASS

DYNAMIC TINTING GLASS FOR
SHADING AND GLARE CONTROL

PRODUCT DATA



ELECTRO CHROMIC

Technical Product Overview

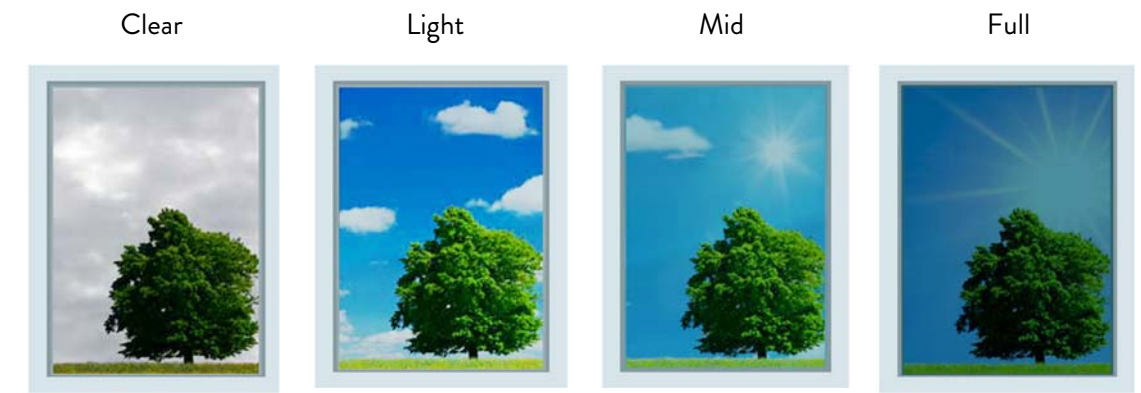
Developed in 1989, Electro Chromic Glass is a high specification dynamic glazing product which allows control over the building's internal environment. This glass technology was designed to create comfortable living and working spaces, strategically reducing glare and internal overheating whilst ensuring building transparency.

Typical Performance (based on a DGU)



| | Clear | Light | Mid | Full |
|----------------------------|-------|-------|------|------|
| Visible Light Transmission | 60% | 17% | 5% | < 1% |
| Solar Factor G | 0.40 | 0.12 | 0.07 | 0.05 |
| EN 410, RL ext | 16% | 10% | 10% | 11% |
| D65 2° RL int | 15% | 10% | 10% | 10% |

Typical Performance (based on a TGU)



| | Clear | Light | Mid | Full |
|----------------------------|-------|-------|------|------|
| Visible Light Transmission | 54% | 16% | 5% | 1% |
| Solar Factor G | 0.36 | 0.09 | 0.05 | 0.03 |
| EN 410, RL ext | 19% | 10% | 10% | 11% |
| D65 2° RL int | 20% | 16% | 16% | 16% |

Glass Specification

| | | | |
|---------------------------------------|--|--------------------------|---|
| Typical DGU Spec | 4mm TXD with solar coating, SGP LAM to 2.2mm clear Electro Chromic Glass, / 12mm 90% Krypton gas cavity / 4mm TXD with low e coating | Max Unit Size | 1520mm x 3050mm |
| Ug Values EN 673 | 1.1 W/m²K (double glazing) 0.6 W/m²K (triple glazing) | Speed of full transition | 5 to 15 minutes (to reach 90% of its tint range at room temp.) |
| Sound reduction, Rw (C,Ctr), EN 140-3 | 31 (-3;-6) dB (double glazing) 32 (-1;-5) dB (triple glazing) | Glass Options | Double / Triple Glazed Rectangle, triangle, trapezoidal etc. |

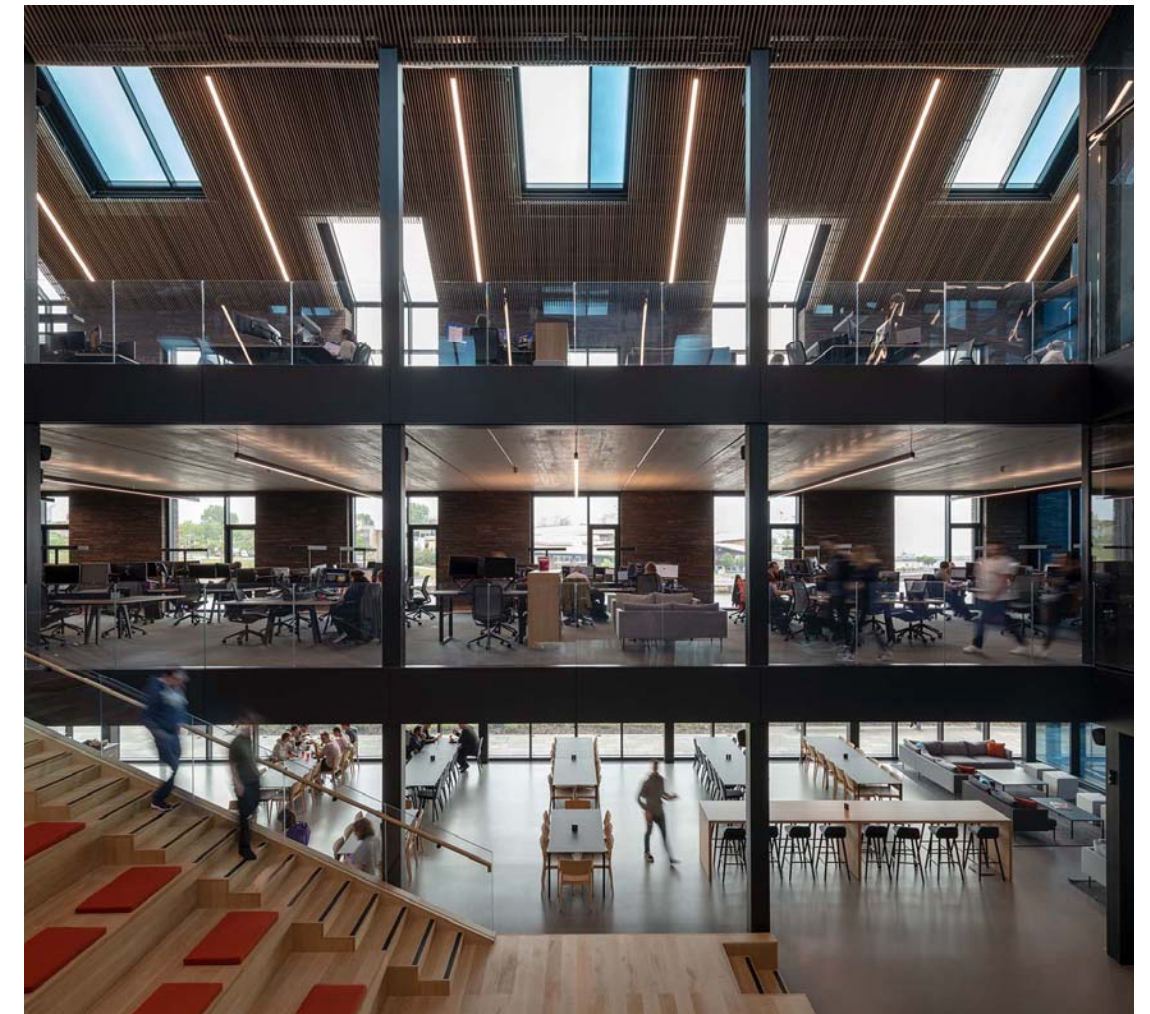


Tombola House

Electro Chromic Glass to all external glazing on this new build office development

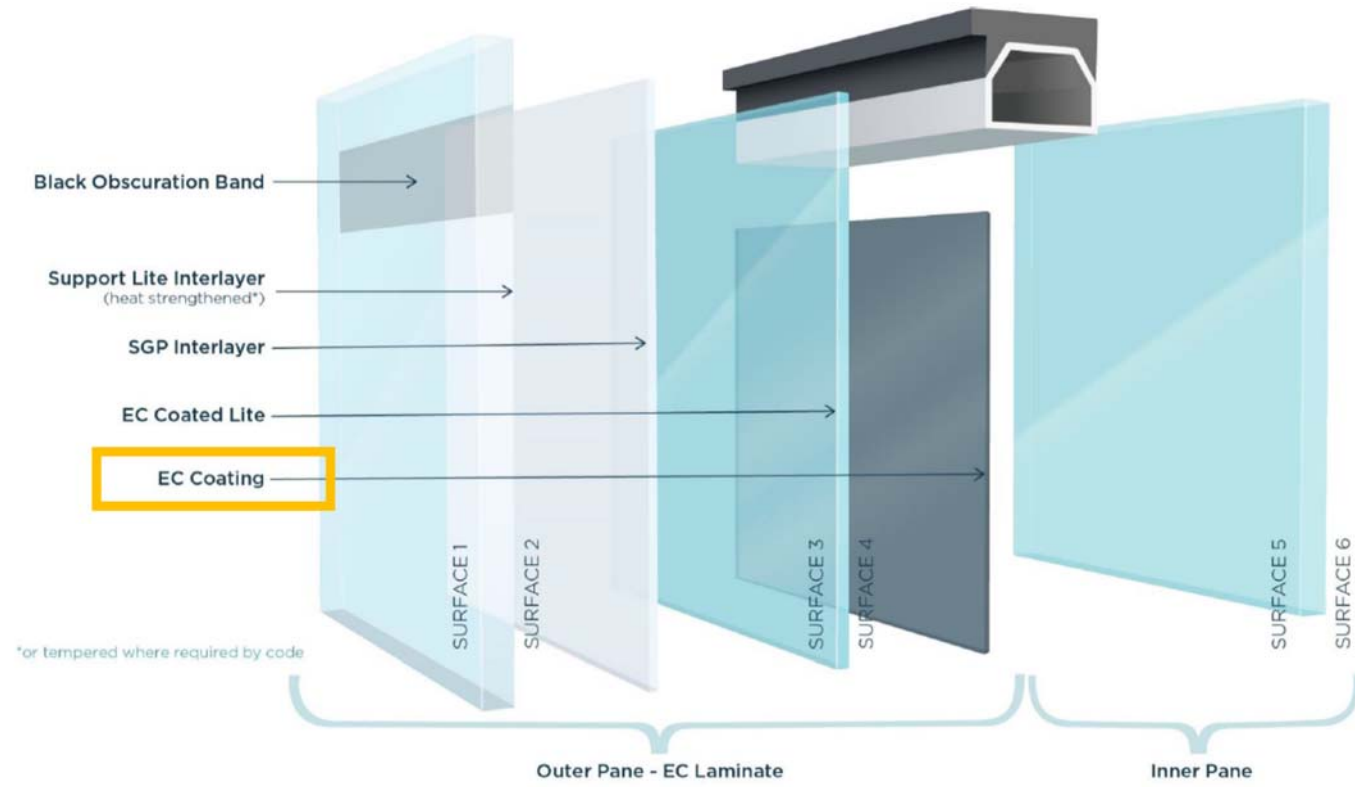
Architect Ryder Architecture

Sunderland, UK



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Variation Types

Classic



The classic type allows full control over the VLT and solar factor of the glass pane. Glass can be faded from clear to fully tinted with two mid steps.

Sectioned



The glass has four distinct sections which can be independently controlled. This provides more accurate shading and greater neutrality of internal colour.

Faded



The glass tint can be graduated down the glass face. This offers the same effect as the sectioned variation but with a smoother differential between the different stages.

Sectioned Variation



Dynamic glazing often does not need to tint and entire pane to block the source of the heat and glare.

- Better views and neutral interior colour rendering
- Precisely control heat and glare whilst maximise
- Clear lined defined zones

1% VLT
5% VLT
20% VLT
60% VLT



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Faded Variation



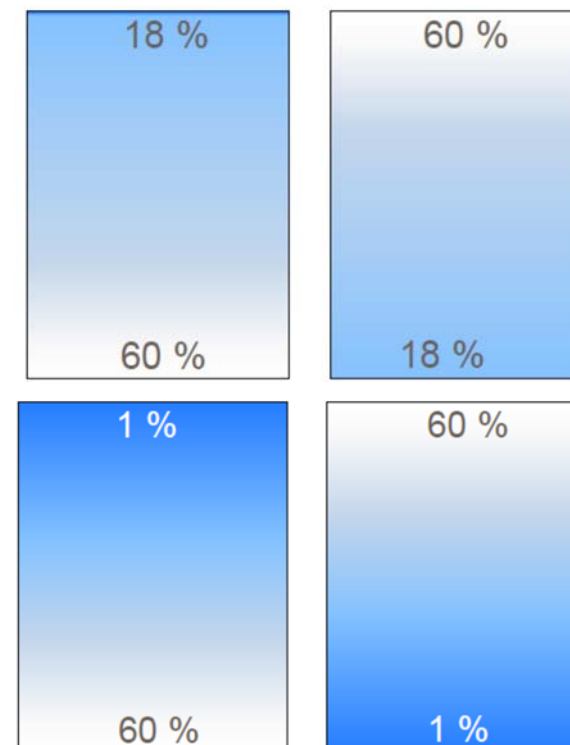
Dynamic glazing often does not need to tint and entire pane to block the source of the heat and glare.

This creates a natural visual aesthetic, mimicking what people experience in nature, while still delivering functionality.

- Better views and neutral interior colour rendering
- Precisely control heat and glare whilst maximise daylight

The glass can be fully tinted or can be gradually tinted across its face depending on the position of the sun in the sky.

Fade Options Examples



Clear



Full Gradient



Full Tint



Buhler Cubic Innovation Campus

1 600 m² of Electro Chromic Glass to state of the art commercial development

Architect Carols Martinez Architects

Uzwil, Switzerland



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Control and Automation

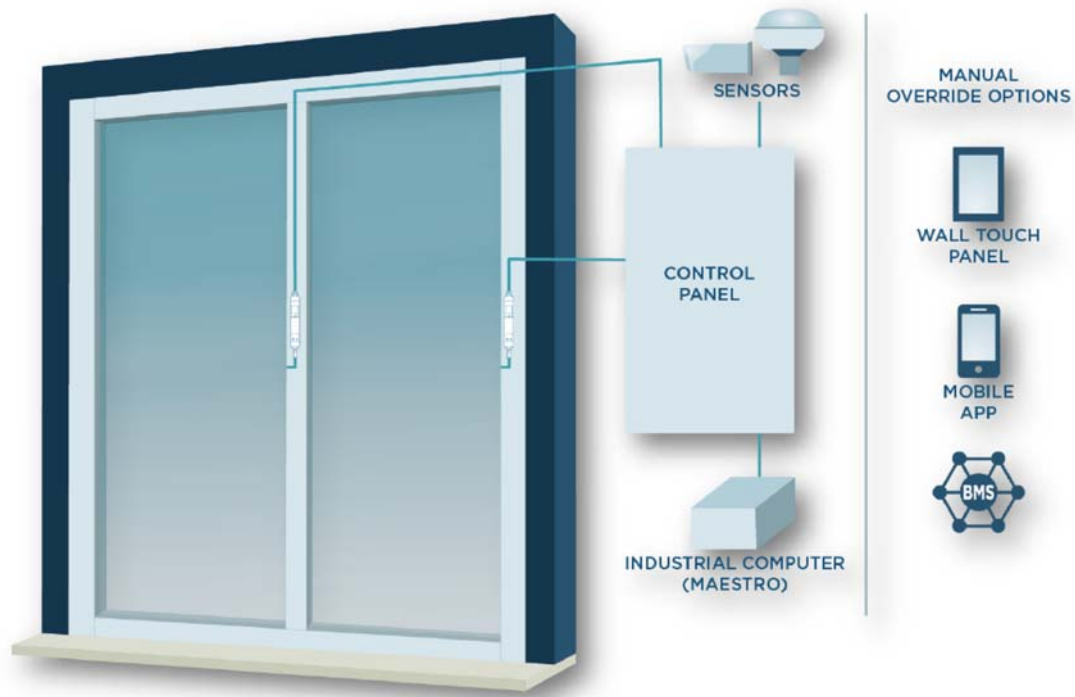
Dynamic glass can become a working part of the building envelope by automating the glass change. The system's built in computer can be paired with sensors to determine when the glass should fade. Control is always able to be overridden by manual control, offering flexibility for all occupants.

Predictive Daylight Algorithm

Touch Panel Example

System Inputs:

- Rooftop Sky Sensor (temperature and illuminance)
- Occupancy
- Window Size
- Time of Day / Season
- Building Orientation
- Façade Sensors (temperature and illuminance)
- Sun Angle
- Sky Conditions



Energy Use and Sustainability

Electro Chromic Glass helps create efficient building designs and has been used on many widely recognised building projects to minimise energy use. By perfectly controlling light ingress you reduce HVAC costs from cooling and reduce lighting energy due to lighting spaces when natural light would do.

Energy Use

Typical Daily Power Consumption 0.05 W/m²
280m² glass will use as much energy in a day as a typical home Wi-Fi modem

- 10-75% whole building energy savings (average)
- 25% reduction in peak energy demand
- ROI within 5 years
- 60% average saving in lighting costs
- 25% average saving on HVAC costs

Achieved Certificates





Ashford Castle

Electro Chromic Glass to new spa building at 5 star luxury castle hotel

Architect Consarc/Phira

Cong, Ireland



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How to Specify

- Control VLT and glare through glass
- Remove the need for blinds
- Improved building performance
- Reduction in HVAC costs
- Maintain transparency through glass
- Flexible designs for structural glazing

The easiest way to incorporate this specialist structural glazing system on your project is to speak to the team at IQ. Full example CAD details and costing are available on request.

Speak to the team at IQ

The team at IQ are the experts in our product range. If you are considering using our products on your project speak to the team at IQ who will be able to start our in house cost and specification engineering service. We can also advise you on the best solution for your intended design, ensure that all specification criteria are met and advise the feasibility to areas of the installation you may not have considered.

Get a Quotation

As part of our engineering service we will create a quotation for the works in question. This allows us all to ensure that the proposed design is within budget. If it is not we can help you adjust the specification to reach all performance, design and budgetary requirements.

Add us to your NBS Specification

To assist you in specification we have created individual NBS Specification sheets for our systems. These, easy to navigate, documents contain all the vital information needed for specification. They are available for you to complete on your own, alternatively ask your sales representative at IQ to complete this on your behalf

Place the Order

When ready you (or your client or the builder) can then place the order for your architectural glazing with us. A full in-house handover will take place and your project will be passed to the contracts and design team. Once your project deposit is placed we will then undertake full detailed design drawings for the installation and any other additional glazing works. Please allow at least



- Frameless glazing design
- Reduce VLT egress in rural projects
- Double or triple glazing possible.
- High performance glass specification
- A range of additional glass finishes possible
- Fully realised solution

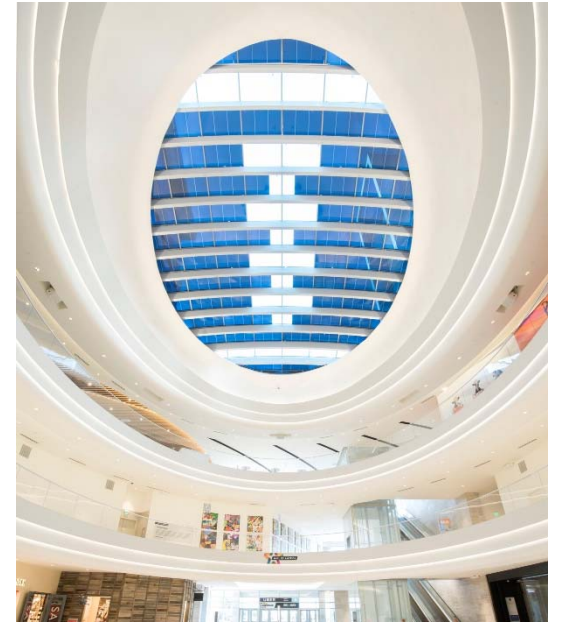
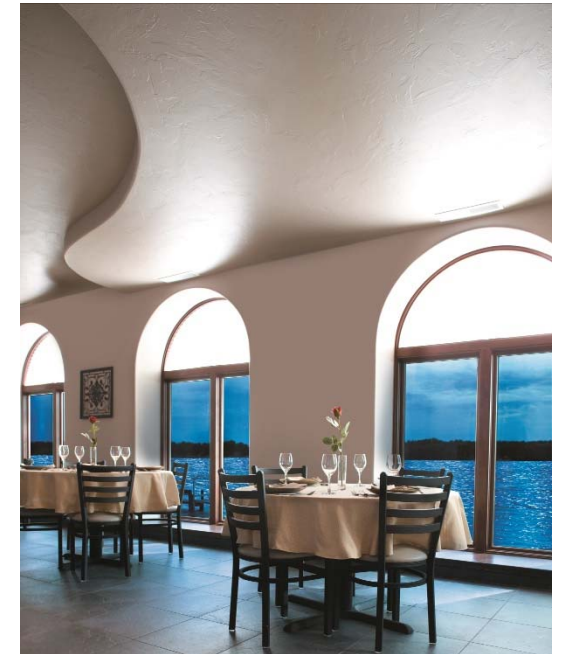
20 working days for the design process.

The project will be appointed a dedicated contracts manager who will oversee the installation process.

Where can I see the system before order?

We have a large working example of Electro Chromic Glass at our showroom in Amersham. The glass forms part of a structural glass roof that sits over our office and internal showroom area.

If you or your clients would like to arrange a virtual or in person visit to the showroom just contact us and arrange an appointment at the showroom.





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