

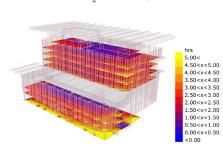
SageGlass offers a variety of simulation and modeling services that can provide customers critical insights on their projects and how electrochromic glass can improve performance. We do this through the use of leading software programs like Diva-for-Rhino, Grasshopper and Radiance. We also have proprietary capabilities that integrate electrochromic glass into these tools. Finally, we can accurately simulate the local thermal comfort impact of electrochromic glass through the use of UC Berkley's Advanced Thermal Comfort Model.

GLARE

We can provide different levels of glare simulation for customers' projects based on specific needs. These simulations can show locations and severity of glare risk that simple orientation-based assessments often miss.

SINGLE LOCATION: Glare risk can be quickly assessed for single viewpoints within a building by evaluating a sun path diagram.

COMPREHENSIVE: A color coded heat map can show both where glare will be present in a building and for how many hours of a typical day, whether looking at a single month or averaged over an entire year.



"Daylight and Glare modeling was helpful for us to determine if SageGlass was the right fit for our project."

Jason Olive RA, LEED® AP ADM Group



DAYLIGHT

We simulate how the dynamic properties of electrochromic glass can help balance daylight in a space. This helps designers understand the impact of daylight on their buildings and occupants.

Light levels are depicted for a single room at single point in time with SageGlass at different tint states, showing how its dynamic VLT range can balance light levels based on need.

SageGlass

Avg. Illuminance: 430 Lux VI T: 1%

361	331	412	567	666	848	855	790
232	262	323	442	537	503	659	752
215	235	335	420	483	625	659	715
190	217	343	410	512	417	629	828
204	211	294	417	402	535	650	.729
176	221	272	346	en	556	601	665
112	123	213	298	434	365	427	482
119	117	153	290	190	235	490	400

Static Glass

Avg. Illuminance: 3,200 Lux

VL1. 60%								
	2222	2439	2566	2642	2726	2532	2430	
	2334	2339	2507	2656	2547	2475	2400	
	2358	2478	2001	2606	2427	2485	2406	
	2502	2627	2521	2674	2860	2476	2345	
	2277	2900	2471	2652	2646	2611	2456	
	2203	2407	2638	2430	2515	2494	2458	
Ī	1763	2266	2126	2253	2276	2416	2009	
	1418	1834	21067	2542	2109	21350	21355	

ENERGY

To help you estimate the potential energy savings SageGlass can deliver, we can support more detailed energy modeling by creating projected tint schedules which can be used as inputs to your calculation programs.

The light transmission and g-value of electrochromic glass are dynamic, so by simulating tint patterns for a calendar year we can derive building-specific light transmission and g-value figures that can help with accurate energy demand simulation.

SageGlass Tint Schedule

ir\Mn	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6				0.41 0.09 0.41	0.41 0.09 0.41	0.41 0.09 0.41	0.41 0.09 0.41	0.41 0.09 0.41				
7		0.41 0.41 0.41	0.41 0.09 0.41	0.09 0.09 0.41	0.09 0.09 0.41	0.09 0.09 0.41	0.09 0.09 0.41	0.41 0.09 0.15	0.41 0.09 0.15	0.41 0.09 0.41		
8	0.41	0.41	0.09	0.09	0.15	0.15	0.09	0.09	0.09	0.41	0.41	0.41
	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
	0.15	0.15	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.15	0.15	0.15
9	0.41	0.09	0.09	0.09	0.09	0.09	0.09	0.15	0.09	0.09	0.41	0.41
	0.09	0.09	0.09	0.15	0.15	0.15	0.15	0.09	0.09	0.09	0.09	0.09
	0.15	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.10	0.15
10	0.09	0.09	0.09	0.09	0.15	0.15	0.15	0.09	0.09	0.09	0.09	0.09
	0.09	0.09	0.10	0.10	0.15	0.15	0.15	0.10	0.10	0.09	0.09	0.09
	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
11	0.09	0.09	0.09	0.10	0.41	0.41	0.41	0.10	0.10	0.09	0.10	0.09
	0.09	0.10	0.10	0.15	0.15	0.15	0.15	0.15	0.10	0.10	0.09	0.09
	0.41	0.41	0.41	0.41	0.10	0.10	0.10	0.41	0.41	0.41	0.41	0.41
12	0.09	0.15	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.10	0.09	0.09
	0.10	0.10	0.10	0.15	0.15	0.15	0.15	0.15	0.10	0.10	0.10	0.10
	0.41	0.41	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.41	0.41	0.41
	0.15	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.15

THERMAL COMFORT

Thermal comfort is typically hard to quantify, but UC Berkley's modeling tool allows us to do exactly that. We can use this simulation program to evaluate the thermal comfort impact of electrochromic glazing vs. traditional glazing solutions. This modeling allows us to visualize, for specific projects, how electrochromic glass can improve occupant comfort in a quantifiable way.

Thermal comfort can be quantified and visualized, with green indicating comfort and yellow, orange and finally red indicating escalating levels of discomfort for building occupants.

	Multi -Zone	e EC Glazing	Low E Glazing+O	verhang
Date &Time	Comfort& Sensation	Solar Load & Skin Temperature	Solar Load & Skin Temperature	Comfort& Sensation
Dec. 21'st 8 am.	Comfortable 0.70 Slightly warm 0.24	,	#	Slightly comfortabl 0.09 Slightly Warm 0.36
Dec. 21'st 9 am.	Comfortable 1.08 Neutral 0.17	,	#	Uncomfortable -1.93 Hot 2.56
Dec. 21'st 10 am.	Comfortable 1.10 Neutral 0.15		*	Uncomfortable -1.89 Hot 2.52
Dec. 21'st	Comfortable 1.22		*	Uncomfortable -1.86

READY FOR A PROJECT CONSULTATION?

SageGlass will make its Technical Solutions experts available to help you determine if any of these services are right for your project. Your <u>local SageGlass sales representative</u> will be happy to help you set up this consultation.

