

Product Selector

See what's possible™



Product	Color appearance	Visible light			Color rendering index Ra(D65)	Solar energy		Euopean standards (EN 673)			American standards (NFRC 2010)					Light to solar gain
		Transmission [%]	Reflection outside [%]	Reflection inside [%]		Direct transmission [%]	Reflection outside [%]	Solar factor (g) EN 410 [%]	U-value [W/m²K] 6 - 12 - 6 mm	U-value [W/m²K] 6 - 16 - 6 mm	Summer					
											U-value [W/m²K] 6 - 12 - 6 mm	U-value [W/m²K] 6 - 16 - 6 mm	Shading coefficient	SHGC	Relative heat gain [W/m²]	
Guardian SunGuard™ eXtra Selective - 6 mm eXtra Selective on extraclear substrate (surface #2) / Air space / 6 mm clear																
SNX 50 HT	Neutral	49	11	13	89	19	42	25	1.5	1.3	1.54	1.27	0.26	0.23	172	2.17
SNX 60 HT	Neutral	59	14	13	94	23	45	29	1.5	1.3	1.54	1.27	0.30	0.26	200	2.24
SNX 70 HT	Neutral	67	13	14	93	26	48	32	1.5	1.3	1.54	1.27	0.33	0.29	220	2.30
Guardian SunGuard™ SuperNeutral™ - 6 mm High Selective on clear substrate (surface #2) / Air space / 6 mm clear																
SN 30 T	Neutral	30	16	19	85	13	30	19	1.6	1.3	1.60	1.33	0.20	0.18	139	1.68
SN 40 T	Neutral	40	18	14	87	18	40	24	1.6	1.3	1.59	1.33	0.25	0.22	166	1.87
SN 50 T	Neutral	48	13	17	90	22	36	29	1.6	1.3	1.57	1.30	0.30	0.26	197	1.85
SN 60 T	Neutral	61	14	14	94	28	39	35	1.6	1.3	1.57	1.30	0.36	0.32	238	1.92
SN 66 T	Neutral	66	14	17	96	31	38	38	1.6	1.3	1.56	1.30	0.39	0.34	258	1.92
SN 70 T	Neutral	69	13	14	96	34	36	41	1.6	1.3	1.58	1.31	0.43	0.38	283	1.84
SN Grey 40 T	Neutral grey	36	8	13	86	15	23	21	1.6	1.3	1.58	1.31	0.24	0.21	159	1.70
SN Grey 50 T	Neutral grey	46	12	14	86	20	27	27	1.6	1.3	1.59	1.33	0.29	0.25	195	1.80
Guardian SunGuard™ Double Silver - 6 mm Double Silver on clear substrate (surface #2) / Air space / 6 mm clear																
DS Aquamarine T	Aquamarine	32	21	15	86	15	23	22	1.6	1.4	1.63	1.38	0.24	0.21	166	1.48
DS Blue T	Blue	27	12	15	87	15	18	22	1.6	1.4	1.64	1.39	0.25	0.22	167	1.23
DS Bronze T	Bronze	30	17	15	85	16	31	23	1.6	1.4	1.65	1.40	0.24	0.21	161	1.45
DS Emerald Green T	Emerald green	31	30	19	92	15	26	21	1.6	1.4	1.62	1.37	0.23	0.20	157	1.49
DS Grey T	Grey	30	18	12	89	16	27	22	1.7	1.4	1.67	1.42	0.24	0.21	164	1.42
DS Silver T	Silver	28	33	14	89	14	38	20	1.6	1.4	1.66	1.41	0.21	0.19	145	1.50
DS Steel Grey T	Steel grey	27	10	10	86	14	18	21	1.7	1.4	1.69	1.44	0.24	0.21	160	1.29
Guardian SunGuard™ High Performance - 6 mm High Performance on clear substrate (surface #2) / Air space / 6 mm clear																
Gold 31 T	Golden brown	34	40	33	77	17	49	23	1.6	1.3	1.58	1.31	0.24	0.21	158	1.64
Neutral 40	Neutral grey	39	23	12	90	24	28	31	1.7	1.5	1.74	1.50	0.34	0.29	223	1.33
Neutral Plus 50	Neutral	48	26	20	94	27	35	33	1.6	1.4	1.63	1.37	0.36	0.32	238	1.53
Royal Blue 40	Dark blue	38	25	23	94	23	29	29	1.7	1.5	1.72	1.48	0.32	0.28	216	1.35
Silver 35	Silver	34	42	23	97	21	41	26	1.6	1.4	1.65	1.39	0.29	0.25	194	1.33
Silver 40	Silver	39	32	18	93	22	37	28	1.6	1.4	1.64	1.39	0.31	0.27	205	1.45

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											U-value [W/m²K] 6 - 12 - 6 mm	U-value [W/m²K] 6 - 16 - 6 mm	Shading coefficient	SHGC	Relative heat gain [W/m²]	
Guardian SunGuard™ Solar - 6 mm Solar clear substrate (surface #2) / Air space / 6 mm ClimaGuard™ Premium 2S (surface #3)																
Light Blue 52 T	Light blue	45	18	19	96	29	18	38	1.6	1.4	1.63	1.38	0.42	0.37	206	1.22
Silver 20 T	Silver	18	31	26	92	11	27	17	1.6	1.4	1.63	1.37	0.20	0.18	137	1.03
Guardian SunGuard™ HD Plus™ - 6 mm HD Plus™ on surface #2 / Air space / 6 mm ClimaGuard™ Premium 2S (surface #3)																
HD Plus Blue T	Blue	12	11	11	96	8	13	14	1.6	1.4	1.63	1.37	0.18	0.16	125	0.75
HD Plus Bronze T	Bronze	12	12	14	98	8	16	14	1.6	1.4	1.63	1.37	0.18	0.16	123	0.75
HD Plus Grey T	Grey	11	5	17	98	8	10	14	1.6	1.4	1.63	1.37	0.18	0.16	126	0.68
Guardian SunGuard™ HD Plus™ - 6 mm HD Plus™ on surface #2 / Air space / 6 mm clear																
HD Plus Blue T	Blue	12	11	13	96	11	12	20	2.5	2.4	2.57	2.43	0.27	0.24	190	0.51
HD Plus Bronze T	Bronze	12	12	17	99	11	15	19	2.5	2.4	2.56	2.42	0.26	0.23	185	0.53
HD Plus Grey T	Grey	11	5	20	98	11	9	20	2.5	2.4	2.54	2.41	0.27	0.24	191	0.47
Guardian SunGuard™ HD Colors - 6 mm HD Colors on surface #2 / Air space / 6 mm ClimaGuard™ Premium 2S (surface #3)																
HD Blue T	Blue	23	21	28	98	15	17	22	1.6	1.4	1.63	1.38	0.26	0.23	176	1.00
HD Bronze T	Bronze	21	14	8	95	13	18	19	1.6	1.4	1.63	1.37	0.23	0.20	154	1.05
HD Green T	Green	30	28	19	95	21	18	28	1.6	1.4	1.63	1.38	0.32	0.28	215	1.04
HD Grey T	Grey	17	12	10	95	12	15	18	1.6	1.4	1.63	1.37	0.22	0.19	150	0.89
Guardian ClimaGuard™ - 6 mm ClimaGuard™ on surface #2 / Air space / 6 mm clear																
Neutral 70 T	Clear neutral	67	12	12	95	46	16	55	1.9	1.7	1.94	1.73	0.62	0.54	405	1.25
Premium 2S T	Clear neutral	79	13	12	96	50	26	24	1.6	1.4	1.63	1.38	0.63	0.55	413	1.42

Some examples of SunGuard™ spandrel glass combinations

Guardian SunGuard™ glazing	Monolithic spandrel		Insulating glass spandrel ² (coating on #2 + enamel on #4)
	Enameled ¹	Shadow box (ventilated with black background)	
Guardian SunGuard™ eXtra Selective			
SNX 50 HT	Clear float glass + WO-B-14-7067 SG Solar Royal Blue 20 + Ferro 140 15 4001 on #2	SG HD Royal Blue 20	SG SNX 50 HT
SNX 60 HT	Clear float glass + WO-B-14-7067 SG Solar Royal Blue 20 + Ferro 140 15 4001 on #2	SG HD Royal Blue 20	SG SNX 60 HT
SNX 70 HT	Clear float glass + WO-E-14-7065 (Greyish) ³ Clear float glass + WO-B-14-7066 (Blueish) ³	SG HD Light Blue 52	SG SNX 70 HT
Guardian SunGuard™ SuperNeutral™			
SN 30 T	-	SG Solar Light Blue 52	SG SN 30 T
SN 40 T	-	SG Solar Light Blue 52	SG SN 40 T
SN 50 T	-	SG Solar Light Blue 52	SG SN 50 T
SN 60 T	-	SG Solar Light Blue 52	SG SN 60 T
SN 66 T	-	SG Solar Light Blue 52	SG SN 66 T
SN 70 T	-	SG Solar Light Blue 52	SG SN 70 T
SN Grey 40 T	-	SG HD Grey T	SG SN Grey 40 T
SN Grey 50 T	-	SG HD Grey T	SG SN Grey 50 T
Guardian SunGuard™ High Performance			
Neutral 40 T	-	-	SG HP Neutral 40
Neutral Plus 50 T	-	SG Solar Light Blue 52	SG HP Neutral Plus 50
Royal Blue 40 T	-	SG Solar Royal Blue 20	SG HP Royal Blue 40
Silver 35 T	-	SG Solar Silver 20	SG HP Silver 35
Silver 40 T	-	SG Solar Silver 20	SG HP Silver 40
Guardian SunGuard™ Double Silver			
DS 30 T	-	SG HD Blue T	SG DS 30 T
DS 40 T	-	SG HD Blue T	SG DS 40 T
DS Blue T	-	SG HD Plus Blue T	SG DS Blue T
DS Bronze T	-	SG Solar Bronze T	SG DS Bronze T
DS Emerald Green T	-	SG HD Green T	SG DS Emerald Green T
DS Grey T	-	SG HD Grey T	SG DS Grey T
DS Silver T	-	SG Solar Silver 20	SG DS Silver T
Guardian ClimaGuard™			
Neutral 70 T	-	-	CG Neutral 70
Premium 2S T	-	-	CG Premium 2S

The information provided above is a general recommendation only based on visual mock-ups and compatibility tests performed with the indicated Ferro ceramic frit system. Other ceramic frit systems/paints can consist of different components; this can lead to compatibility issues with the Guardian SunGuard coatings and/or can modify the final esthetic appearance of the relevant paint-coating combination. It is the responsibility of the users of this information to assure that appropriate compatibility tests in a real size mock-up are performed to verify the color matching between vision and spandrel.

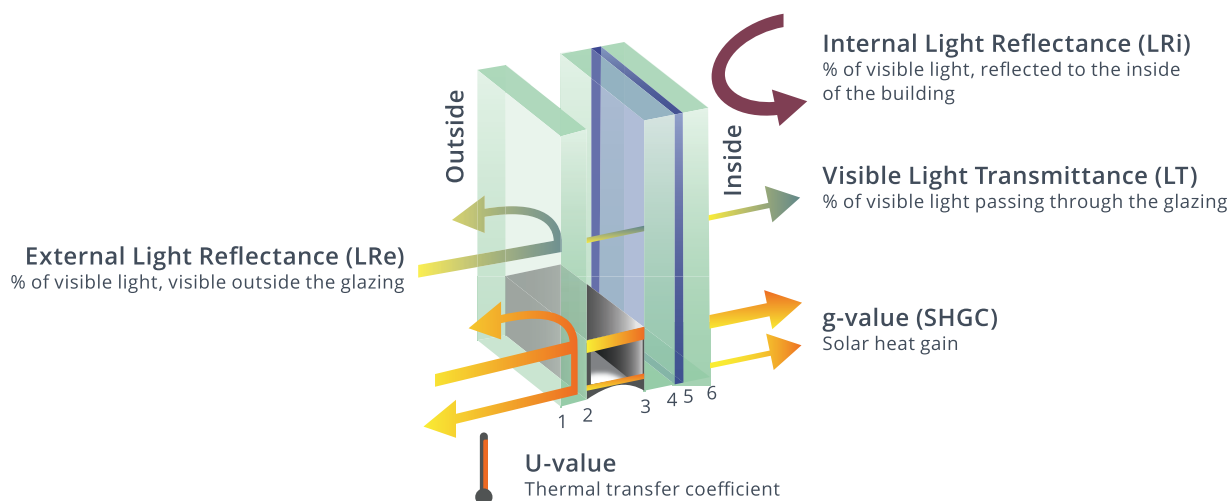
¹ The indicated enamels (numbers) from Ferro and Wolbring (WO) are based on the enamel type FERRO System 140 and special color mixtures to adapt best to the related vision. Please contact the Guardian Technical Services Department for more information.

² In insulating glass spandrels, based on our experience, black or dark grey are the enamel colors that better match with the vision areas. For more information you can contact your local Technical Services Department.

³ When working on matching visual appearance for neutral and low reflecting glass types, which might be challenging, Guardian recommends a full size outdoor mock-up. When selecting and applying enamels of other providers, the following RAL approximations can be used:

WO-E-14-7065	RAL 7011 / 7043
WO-B-14-7066	RAL 5007 / 5024
WO-E-14-7063	RAL 7011 / 7031
WO-B-14-7067	RAL 5023
WO-B-14-7064	RAL 5007 / 5009

Key glazing performance factors



Selectivity (or light to solar gain)

The ratio of the visible light transmittance to the total solar energy transmissions (g-value). $S = T_{vis}/g$

A higher selectivity means sunlight entering the room is more efficient for daylighting, especially for summer conditions where more light is desired with less solar gain. This ratio is the measurement used to determine whether the glazing is “spectrally selective”.

U-value

It is a measure of the heat gain or loss through glass due to the difference between indoor and outdoor air temperatures. It is also referred to as the overall coefficient of heat transfer. A lower U-value indicates better insulating properties. Units are in $[W/m^2K]$.

Solar Heat Gain Coefficient (or SHGC)

The percent of solar energy incident on the glass that is transferred indoors both directly and indirectly through the glass.

The direct gain portion equals the solar energy transmittance, while the indirect is the fraction of solar incident on the glass that is absorbed and re-radiated or convected indoors.

Shading coefficient

The non-dimensional value aids calculations of the cooling load of a building and is also known as b factor. It describes the ratio of the g value of a particular glazing to a 3 mm float glass with a g-value of 87 %.

Pursuant to EN 410 (2011): $b = g_{EN 410} / 0.87$

Building codes

	Position, building type	Glass coverage [%]	U-value glass [W/m²K]	SHGC max.	SC max.	VLT min.
Dubai Building Code	Façade	0-40	2.1		0.4	0.40
	Façade	40-60	1.9		0.32	0.32
	Façade	60-100	1.7		0.25	0.25
	Shopfronts and showrooms		1.9		0.76	N/A
	Skylight	0-10	1.9		0.32	0.32
	Skylight	> 10	1.9		0.25	0.25
Trakhees * Btu/hr-ft2-°f	Option 1	0-30	0.37*	0.252	0.29	0.25
	Option 2	30-100	0.335*	0.209	0.24	0.11
	Skylight & Dome		0.335*	0.174	0.2	0.4
Abu Dhabi Etidama	Pearl 1	Curtain Wall / Storefront	1.9*	If PF < 0.25 - SHGC: 0.23		
		Entrance	2.6*	If 0.25 ≤ PF < 0.50 - SHGC: 0.30		
		All other	1.9*	If PF ≥ 0.50 - SHGC: 0.36		
		Skylight	3.8*	0.30		
	Pearl 2 - Glazing area not to exceed 15 % of conditioned floor area		2.2	0.30		
Ras al Khaimah Barjeel Regulation	Façade		2.2	0.30		
	Skylight		1.8	0.30		
Bahrain	Shopfront & Showrooms		1.9		0.76	
	Skylight & Roof Openings		1.9		0.25	0.1
	All types	0-40	2.1		0.40	0.25
	All types	40-100	1.9		0.30	0.2
Saudi Arabia	Façade	0-40	2.89*	0.25*	0.29	
	Façade	40-50	2.38*	0.25*	0.29	
	Façade	50-100	1.87*	0.25*	0.29	
	Low Rise Residential Building	Vertical glazing 25 % of wall	2.668*	0.25*		
	Skylight with Crub, Glass	Percentage of Roof 0-2.0	11.23	0.36		
	Skylight with Crub, Glass	Percentage of Roof 2.1-5.0	11.23	0.19		
Kuwait	Residential	51-100	2.0* (0.35 Btu)	0.22		
	Residential	16-50	3.33* (0.59 Btu)	0.25		
	Residential	0-15	3.61* (0.64 Btu)	0.40		
	Govt & Commercial		1.14* (0.20 Btu)	0.22		
	Note: As per ANSI/NFRC 100 @ 24 °C and 48 °C for interior and exterior conditions, respectively.					
Qatar		5-40	3.30 (0.58 Btu)	0.3		
		Above 40	2.10 (0.36 Btu)	0.25		
	Showroom**		2.10 (0.36 Btu)	0.22		
Qatar Kahramaa Regulation	Façade	0-40	3.3		0.40	
	Façade	40-60	2.1		0.35	
	Façade	60-100	2.1		0.35	
	Showroom		2.1		0.6	>0.3
(GCS) Qatar Construction Specifications	Façade	0-40	2.1		0.40	>0.1
	Façade	40-60	1.9		0.32	>0.1
	Façade	60-100	1.9		0.25	>0.1
	Showroom		1.9		0.32	>0.4
	Skylight		1.9		0.25	>0.3
(GSAS) Global Sustainability Assessment System	Façade	0-50	1.8		0.25	
Jordan (No Green Building points)	Façade	10-40	3.3		0.35	
	Façade	40-70	2.0		0.30	
	Façade	70-100	1.6		0.30	
	Skylight			0.25		
Jordan (With Green Building points)	Façade	10-40	3.0	< 0.2	0.30	

Values specified among SHGC and SC in respective regulations.

* Whole system assembly U-factor

** For the showroom building, double glazing shall be used with maximum U-value 2.10 (0.36) W/m² °C (Btu/ft²h F), maximum Solar Heat Gain Coefficient 0.3 and with minimum Visible Transmittance 0.3.

SunGuard® eXtra Selective products are also available on ultra clear (low-iron) substrates on request. The products in this publication are sold subject to Guardian Glass standard terms and conditions of sale and any applicable written warranties. It is the responsibility of the purchaser to confirm that the products are suitable for their intended application. Please contact your local Guardian Glass representative to obtain any applicable handling and fabrication guides and for the most current product information. Guardian Glass reserves the right to change product performance characteristics without notice or obligation.

Discover Guardian Glass Analytics™

Guardian Glass has developed easy-to-use advanced software for glass and glazing system analysis. Guardian Glass Analytics™ online tools offer a comprehensive suite of engineering and analytical reports that demonstrate the advantages of high-performance glass in building facades.

glassanalytics.guardian.com

Customize

Consider your options

The SunGuard™ Performance Calculator simplifies creation of glass make-ups through a simple point-and-click, web-based interface. Use the calculator to model the thermal and optical properties for glass make-ups ranging from monolithic uncoated glass to highly complex combinations of float glass substrates, coating and interlayers. Then easily create client-ready reports comparing glass options.

Visualize

Seeing is believing

The Guardian Glass Visualizer dynamically generates photo-realistic images of both exterior and interior glazing views. It allows the user to evaluate the aesthetic properties of virtually any glass make-up. Just choose the glass you want to visualize, select the building and perspective that suits you, and watch how various sky conditions affect the appearance of the glass.

Design

Connect your glass with the rest of your project

The Guardian BIM Generator provides thermal and optical performances of the project specific IG make-ups. Visibility settings control the level of detailing depending on the scale of view. Parameters control the dimensions of the spacer systems and glass bite of the unit. Fabrication needs for heat treatment or lamination can be specified, allowing for detailed glazing schedule and material takeoffs.

Configure

Solve your sound

Using the new Acoustic Assistant is easier than ever before. A set-up assistant helps guide you through a set of relevant questions aimed at reducing the 70 million possible configurations to a manageable number, before giving you the flexibility to refine the data to suit your needs in the results table.

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