



**GUARDIAN
SUNGUARD®**

ADVANCED ARCHITECTURAL GLASS

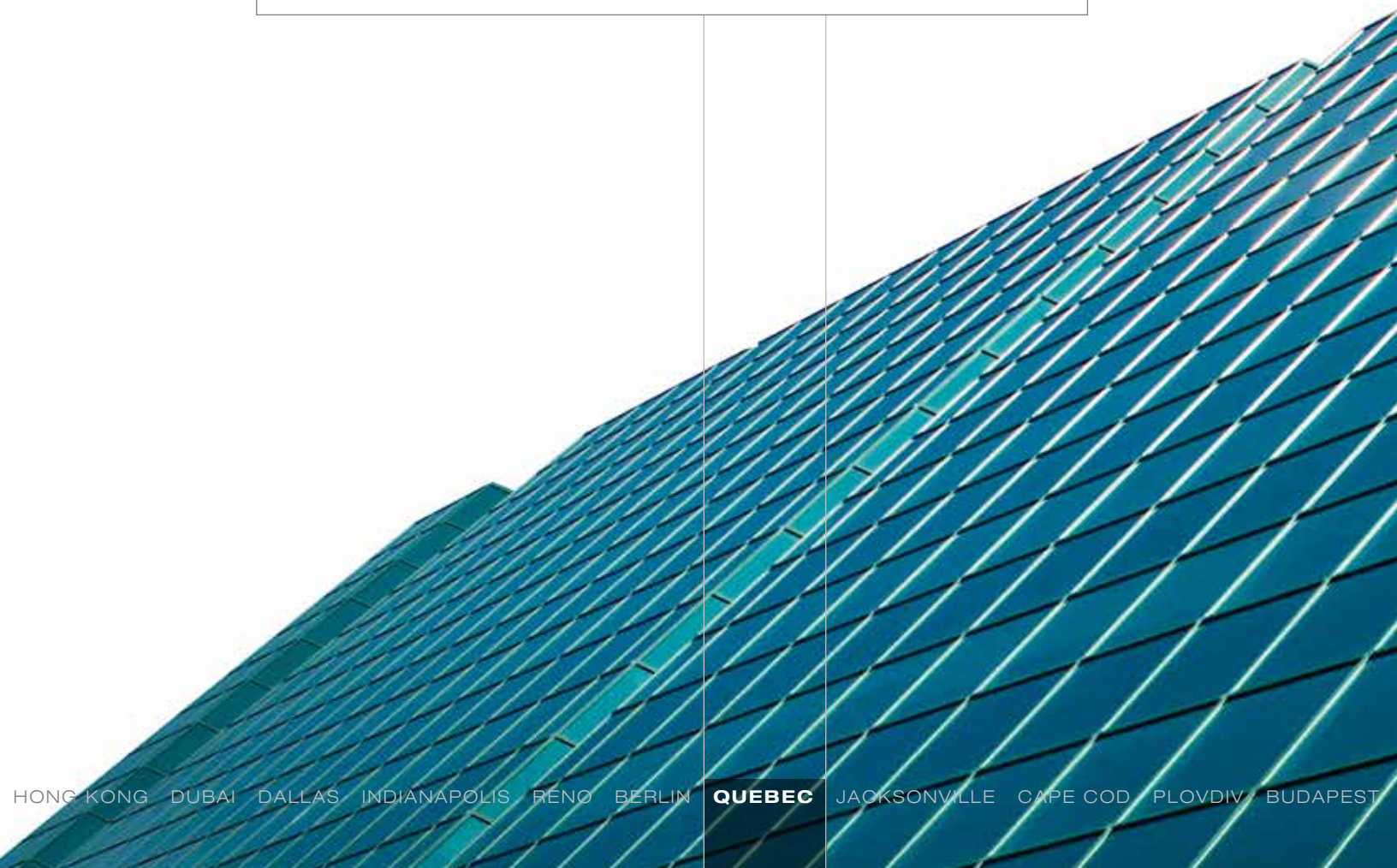
VITRUM
GLASS GROUP

BUILD WITH LIGHT®

SUNGUARD®

Advanced Architectural Glass

BUILDING WITH LIGHT. That's what SunGuard Advanced Architectural Glass from Guardian is all about. Our comprehensive range of coatings, colors and design solutions allows architects to explore fully the aesthetic and functional possibilities of light — both interior and exterior — while meeting complex energy and performance requirements. Drawing on the cumulative expertise of glassmakers and production teams throughout the world, Guardian continually applies science and cutting-edge technology to the development of new SunGuard products that expand the limits of performance. This level of commitment extends locally to independent Guardian Select® Fabricators, who are trained and certified by Guardian to provide high-quality coated glass products. In these pages you will see the many ways Guardian helps architects build some of the world's most innovative buildings. *With light.*



HONG KONG DUBAI DALLAS INDIANAPOLIS RENO BERLIN **QUEBEC** JACKSONVILLE CAPE COD PLOVDIV BUDAPEST



**70 CREMANZIE
HULL, QC, CANADA**

ARCHITECT: Marcel Landry

GLAZIER: Vitreie Vertech

FABRICATOR: Industries Cover

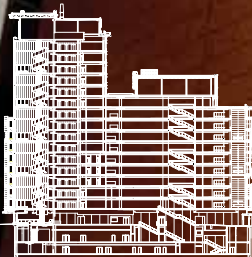
TO REQUEST SAMPLES

visit SunGuardGlass.com or call 1-866-GuardSG
(482-7374)



**GUARDIAN
SUNGUARD®**

ADVANCED ARCHITECTURAL GLASS



**CONCORDIA UNIVERSITY
MONTREAL, QC, CANADA**

ARCHITECT: **KPMB Architects**

GLAZIER: **Oldcastle BuildingEnvelope**

FABRICATOR: **Trulite Glass &
Aluminum Solutions**

ATLANTA GREENVILLE ALEXANDRIA LUXEMBOURG WARSAW NIAGARA FALLS SHARJAH SALVADOR QUERETERO BIRMINGHAM

SUNGUARD

SuperNeutral® Series

NATURAL LIGHT, NEUTRAL COLOR AND SOLAR PERFORMANCE

SNX 62/27 & SNX 51/23 utilize advanced triple-silver technology to offer very low solar heat gain coefficients on clear glass - 0.27 and 0.23 respectively, with exceptional light-to-solar-gain ratios of 2.30 and 2.18. SNX 62/27 reflects neutral color, SNX 51/23 is light blue – both provide superior solar control and excellent energy performance.

SUPERNEUTRAL 68 transmits the most light and has the most neutral appearance of any SunGuard product. It can also be laminated to deliver sound attenuation, security, safety and hurricane protection.

SUPERNEUTRAL 54 combines a neutral appearance with exceptional solar-energy control to strike the perfect balance between natural daylight, glare control and energy savings. This product exceeds most energy code requirements with a SHGC of 0.28 in a standard 1" insulating glass unit.

SNR 43 has a light silver-blue appearance, a super-low SHGC of 0.23 on clear float glass and a 1.88 light-to-solar gain (LSG) ratio. Slightly reflective, SNR 43 is a great choice for all types of commercial projects and provides an excellent vision to spandrel match.

SUPERNEUTRAL ON SPECIALTY GLASS, TINTS AND THE #3 SURFACE

For a stunning, ultra-clear appearance combined with superior energy efficiency, all SuperNeutral products are available with Guardian's UltraWhite™ float glass. UltraWhite's virtual absence of color is perfect for applications where neutral color and increased clarity are desired.

SuperNeutral products are also available on Guardian's Green, TwilightGreen®, CrystalGray® and gray tinted float glass. Combined with SuperNeutral coatings, Guardian tints offer lower reflectance, reduced glare and improved solar control.

All SunGuard SuperNeutral coatings are designed to be used on the #2 surface of an insulating glass unit. In addition, SN 68 and SNX 62/27 can also be used on the #3 surface in conjunction with a tinted or coated outboard lite.

TO REQUEST SAMPLES

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(482-7374)

SUNGUARD

High Performance Series

HIGH PERFORMANCE LOW-E COATED GLASS

SunGuard High Performance Series glass delivers medium to high visible light transmission and moderate reflectivity along with maximum energy savings that meet or exceed energy code requirements. There are seven low-emissivity coatings to choose from, available on various clear and tinted substrates. Guardian also offers SunGuard IS 20, an interior surface coating to lower the U-value.

NEUTRAL 78/65

NEUTRAL 50

AG 50

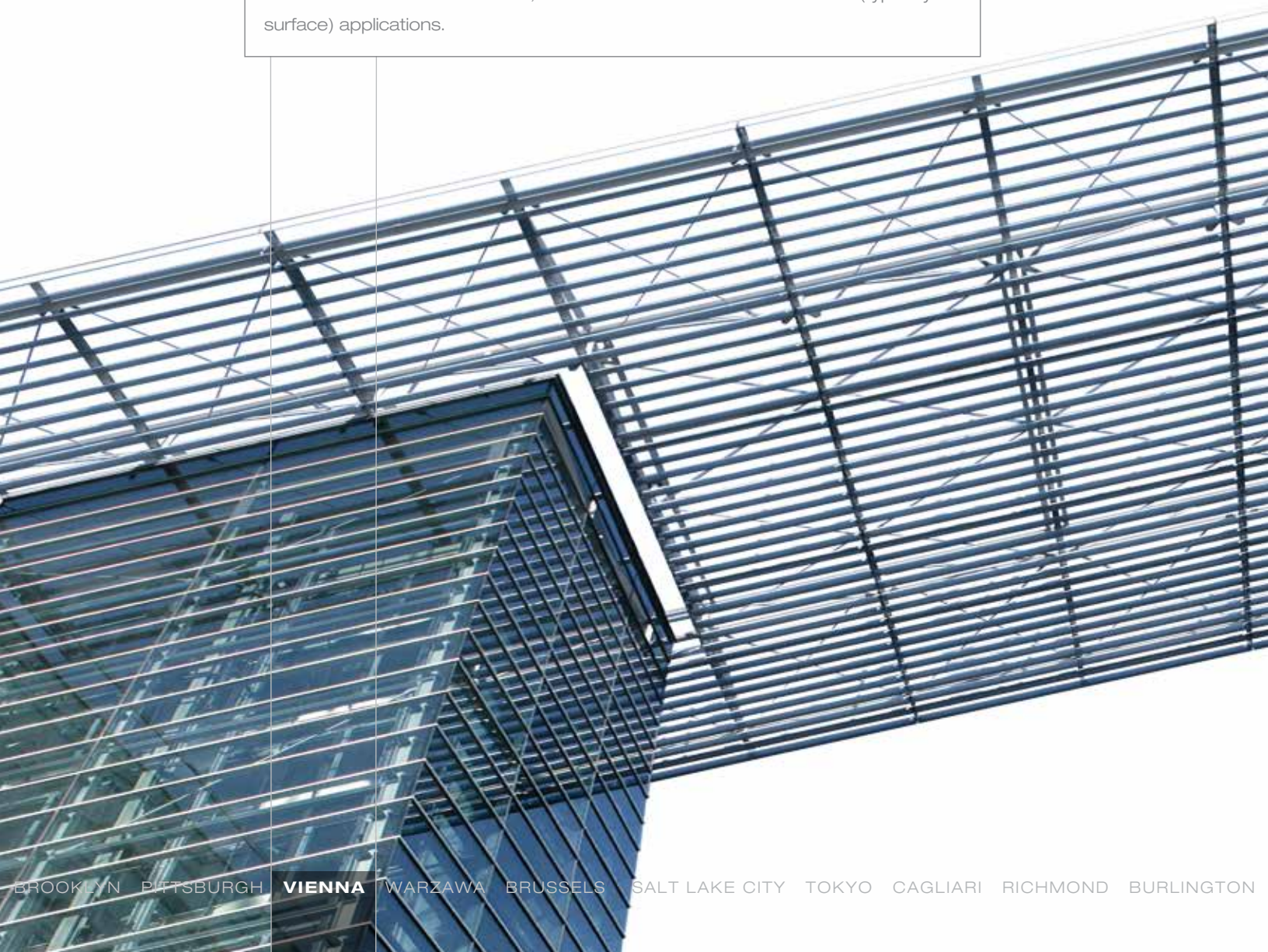
AG 43

NEUTRAL 61

NEUTRAL 40

SUNGUARD IS 20

All SunGuard High Performance coatings are designed to be used on the #2 surface of an insulating glass unit, except Neutral 78/65, which can be used on the #2 or #3 surface and IS 20, which is intended for interior surface (typically #4 surface) applications.





**OFFICE PARK
VIENNA, AUSTRIA**
ARCHITECT: Holzbauer and Partners
GLAZIER: Petschenig Glastec
FABRICATOR: Steindl Glas

TO REQUEST SAMPLES

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(482-7374)



**GUARDIAN
SUNGUARD®**

ADVANCED ARCHITECTURAL GLASS

**TIME WARNER CENTER
NEW YORK, NY, USA**

ARCHITECT: Skidmore, Owings & Merrill LLP

GLAZIER: Glassalum

FABRICATOR: Guardian, JE Berkowitz

ROME PARIS ANNAPOLIS PORTLAND BOSTON SARAJEVO RIO DE JANEIRO ALBANY ABU DHABI WHEELING NEW YORK



SUNGUARD

Solar Control

SOLAR CONTROL REFLECTIVE COATED GLASS

SunGuard Silver 20 is a high-performance, solar-reflective coated glass product that specializes in blocking heat and delivering energy efficiency that meets or exceeds energy code requirements.

SILVER 20

Available on clear and green-tinted glass offering silver and silver-green aesthetic options. For shorter lead times and faster delivery, Silver 20 can be fabricated near the job site.

TO REQUEST SAMPLES

visit SunGuardGlass.com or call 1-866-GuardSG
(482-7374)

BLUMENFELD GENDY TEL AVIV MILWAUKEE **NEW YORK** DURHAM TAMPA ANN ARBOR ORLANDO ZURICH CHICAGO

SUNGUARD Spandrel HT

Guardian can help architects and designers achieve a desired spandrel appearance for SunGuard coatings—providing a close match to vision glass or a complementary color—by using **SUNGUARD SPANDREL HT** back painted glass. Spandrel HT is a lead-free, proprietary coating system that provides a smooth, uniform appearance after heat-treatment and has the characteristics of a ceramic frit, permanently fusing to the glass surface. To harmonize or contrast with the vision glass area and provide long lasting beauty to your architectural projects, SunGuard Spandrel HT is available in three commonly specified colors: White, Black, and Warm Gray.

We recommend that full-size mock-ups be prepared and approved to confirm the most desirable spandrel option for your specific project.



SUNGUARD

Laminated Glass

SAFETY, SECURITY, SOUND AND SOLAR CONTROL

Many SunGuard products can be laminated to meet a wide variety of project requirements, including sound attenuation, safety, security, and hurricane protection. Contact Guardian for help with your project.



1700 K STREET
WASHINGTON, D.C., USA

ARCHITECT: Pei Cobb Freed & Partners

GLAZIER: Oldcastle BuildingEnvelope

FABRICATOR: Trulite Glass &
Aluminum Solutions

TO REQUEST SAMPLES

visit SunGuardGlass.com or call 1-866-GuardSG
(482-7374)

TORONTO WASHINGTON D.C. KUWAIT CITY BRASILIA BEIJING TOYAMA FRANKFURT GENEVA MOSCOW

Fabricators & Glaziers



Guardian Select® Fabricators

SunGuard Advanced Architectural Glass products are produced at multiple U.S. locations and are distributed through a network of independent Guardian Select Fabricators (shown above). These fabricators have completed a rigorous certification process administered by Guardian. Select Fabricators offer comprehensive glass fabrication for commercial projects and typically are able to cut, heat-treat, insulate, laminate, silkscreen and produce spandrel glass. In addition, some Select Fabricators can bend SunGuard coated glass for more complex designs. Select Fabricators provide glass samples for mock-ups and typically offer fast-track delivery.



Glazier Connection™ Members

Guardian's Glazier Connection quickly puts you in touch with glazing contractors that are experienced in installing Guardian high performance coated glass for commercial applications, including all types of facades: curtainwalls, windowwalls, punched openings and commercial windows, spandrel glass, storefronts, and much more. Guardian Glazier Connection members work seamlessly with our Guardian Select Fabricator network of glass fabrication companies to provide you with quick turnaround and expertise, so your project can be completed on time.

To locate a Guardian Select Fabricator or Glazier Connection member near your project site, visit www.SunGuardGlass.com.

GUARDIAN INDUSTRIES

INNOVATION AND TECHNICAL SUPPORT

USGBC LEED Specification Using SunGuard SuperNeutral, SunGuard High Performance and SunGuard Solar Series glass products can be an important part of obtaining LEED certification in five credit categories: Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, Innovation and Design Process, and Regional Priority. For a copy of our LEED Brochure, call 1-866-GuardSG (482-7374) or visit www.SunGuardGlass.com.

Web Resources at www.SunGuardGlass.com Guardian provides several easy-to-use online tools and resources to help architects specify SunGuard products on our web site at www.SunGuardGlass.com, including: Glass Analytics, a comprehensive suite of tools comprised of a Performance Calculator, BIM Generator, Building Energy Calculator and Glass Visualizer that offers architects and other project specifiers comprehensive tools to evaluate commercial glazing options and their impact on energy use and design; a smartphone app that allows interaction with hundreds of projects worldwide; a searchable commercial building project database; a SunGuard performance comparison tool; a Guardian Select Fabricator locator and a Glazier Connection member locator.

3-Part Specifications Guardian's SunGuard specifications in standard CSI 3-part format are available from your Guardian Architectural Design Manager (ADM) and at www.SunGuardGlass.com. ARCOM, the exclusive publisher of AIA (the American Institute of Architects) MASTERSPEC®, has authorized Guardian to offer a licensed version of PRODUCT MASTERSPEC on the SunGuard Web site and, for AIA members, on the AIA web site. In addition, you can find SunGuard specifications online at BSD SpecLink and ARCAT.

AIA/CES Presentations Guardian participates in the American Institute of Architects Continuing Education System (AIA/CES) by providing seminar presentations, some of which qualify for Health, Safety and Welfare credits. Whether you are interested in basic commercial glass knowledge, glass from an energy conservation perspective or current applications for laminated glass, we can provide you with helpful information regarding design using glass. Call 1-866-GuardSG (482-7374) or your local SunGuard Architectural Design Manager to arrange a time and place for a seminar presentation. In addition, a number of these presentations can be accessed on the McGraw-Hill Construction Continuing Education Center online at <http://continuingeducation.construction.com/lev.php?L=167>.

Technical Support Hotline: 1-866-GuardSG (482-7374)

Technical support is always available from your Architectural Design Manager (ADM) and/or Regional Technical Advisor (RTA). For technical or product information, please call our Technical Support Hotline to find the technical specialist in your area. Some areas where we can help are:

- solar, thermal or acoustical performance of coated glass
- computer-based wind load and thermal stress analysis program
- product availability and specification information
- architectural glass sample boxes and 12" x 12" samples



INSULATING GLASS DATA – SUPERNEUTRAL SERIES

Product	Outboard - Inboard Substrate	Appearance	Transmission			Reflectance			U-Value Winter Nighttime		Relative Heat Gain	Shading Coefficient	Solar Heat Gain Coefficient	Light to Solar Gain (LSG)
			Visible Light %	Ultra-violet %	Solar Energy %	Visible Light Out %	Visible Light In %	Solar Energy Out %	Air	Argon				
SunGuard SuperNeutral			Coating #2 Surface									6 mm/12 mm a.s./6 mm		
SNX 62/27	UltraWhite - UltraWhite	Ultra Clear	63	7	24	11	12	48	0.29	0.24	65	0.31	0.27	2.36
	Clear - Clear	Clear	62	6	23	11	12	39	0.29	0.24	65	0.31	0.27	2.30
	Green - Clear	Green	52	3	18	9	11	11	0.29	0.24	59	0.28	0.25	2.13
	TwilightGreen - Clear	Dark Green	46	2	16	8	11	8	0.29	0.24	54	0.25	0.22	2.08
	CrystalGray - Clear	Light Gray	45	4	17	8	11	19	0.29	0.24	55	0.25	0.22	1.99
	Gray - Clear	Gray	30	3	12	6	10	19	0.29	0.24	44	0.20	0.18	1.69
SNX 51/23	UltraWhite - UltraWhite	Light Blue	52	11	20	14	13	42	0.29	0.24	57	0.27	0.23	2.24
	Clear - Clear	Light Blue	51	10	19	14	13	35	0.29	0.24	57	0.27	0.23	2.18
	Green - Clear	Blue-Green	43	5	15	11	13	11	0.29	0.24	53	0.25	0.22	1.99
	TwilightGreen - Clear	Dark Green	38	3	13	10	13	8	0.29	0.24	49	0.22	0.20	1.93
	CrystalGray - Clear	Light Gray	37	6	14	9	13	17	0.29	0.24	49	0.23	0.20	1.85
	Gray - Clear	Gray	25	5	10	7	12	17	0.29	0.24	40	0.18	0.16	1.55
SN 68	UltraWhite - UltraWhite	Ultra Clear	69	32	36	11	12	39	0.29	0.25	93	0.44	0.39	1.79
	Clear - Clear	Clear	68	29	33	11	12	32	0.29	0.25	90	0.43	0.38	1.80
	Green - Clear	Green	58	14	24	9	11	9	0.29	0.25	73	0.34	0.30	1.91
	TwilightGreen - Clear	Dark Green	51	9	20	8	11	7	0.29	0.25	64	0.30	0.27	1.93
	CrystalGray - Clear	Light Gray	49	17	24	8	11	16	0.29	0.25	72	0.34	0.30	1.65
	Gray - Clear	Gray	33	13	18	6	10	15	0.29	0.25	60	0.28	0.25	1.35
SN 54	UltraWhite - UltraWhite	Ultra Clear	55	17	25	13	18	40	0.29	0.24	69	0.33	0.28	1.93
	Clear - Clear	Clear	54	15	23	13	18	33	0.29	0.24	68	0.32	0.28	1.91
	Green - Clear	Green	46	7	17	10	18	10	0.29	0.24	59	0.27	0.24	1.88
	TwilightGreen - Clear	Dark Green	41	4	15	9	17	8	0.29	0.24	53	0.25	0.22	1.86
	CrystalGray - Clear	Light Gray	39	9	17	9	17	17	0.29	0.24	57	0.26	0.23	1.68
	Gray - Clear	Gray	27	7	13	7	17	16	0.29	0.24	47	0.22	0.19	1.38
SNR 43	UltraWhite - UltraWhite	Light Silver	44	18	20	28	14	50	0.29	0.24	56	0.26	0.23	1.92
	Clear - Clear	Light Silver	43	17	19	27	14	42	0.29	0.24	56	0.26	0.23	1.89
	Green - Clear	Green	36	8	14	21	14	14	0.29	0.24	50	0.23	0.20	1.78
	TwilightGreen - Clear	Dark Green	32	5	12	18	13	11	0.29	0.24	46	0.21	0.19	1.73
	CrystalGray - Clear	Silver Gray	31	10	13	17	13	21	0.29	0.24	48	0.22	0.19	1.60
	Gray - Clear	Silver Gray	21	7	10	10	13	19	0.29	0.24	41	0.18	0.16	1.29

INSULATING GLASS DATA WITH SUNGUARD IS 20

Product	Outboard - Inboard Substrate	Appearance	Transmission			Reflectance			U-Value Winter Nighttime		Relative Heat Gain	Shading Coefficient	Solar Heat Gain Coefficient	Light to Solar Gain (LSG)
			Visible Light %	Ultra-violet %	Solar Energy %	Visible Light Out %	Visible Light In %	Solar Energy Out %	Air	Argon				
SunGuard SuperNeutral + IS 20			Coating #2 & IS 20 #4 Surface									6 mm/12 mm a.s./6 mm		
SNX 62/27 + IS 20	UltraWhite - UltraWhite	Ultra Clear	61	6	23	11	12	48	0.23	0.20	61	0.29	0.25	2.40
	Clear - Clear	Clear	60	6	22	11	13	40	0.23	0.20	61	0.29	0.25	2.36
SNX 51/23 + IS 20	UltraWhite - UltraWhite	Light Blue	50	10	19	14	14	42	0.23	0.20	53	0.25	0.22	2.31
	Clear - Clear	Light Blue	49	10	18	14	14	35	0.23	0.20	52	0.25	0.22	2.27
SN 68 + IS 20	UltraWhite - UltraWhite	Ultra Clear	67	30	34	11	13	39	0.24	0.20	88	0.43	0.37	1.80
	Clear - Clear	Clear	66	28	32	11	13	32	0.24	0.20	85	0.41	0.36	1.83
SN 54 + IS 20	UltraWhite - UltraWhite	Ultra Clear	53	16	24	13	18	41	0.24	0.20	65	0.31	0.27	1.97
	Clear - Clear	Clear	52	14	23	13	18	33	0.24	0.20	63	0.30	0.27	1.97
SNR 43 + IS 20	UltraWhite - UltraWhite	Light Silver	43	17	19	28	14	50	0.23	0.20	52	0.25	0.22	1.97
	Clear - Clear	Light Silver	42	16	18	28	14	42	0.23	0.20	51	0.25	0.21	1.95

NOTES SPECIFIC TO THE SUNGUARD SUPERNEUTRAL w/IS 20 TABLE ABOVE:

- Performance data is calculated with argon gas fill.
- SunGuard IS 20 is also available with SunGuard High Performance and Solar products.

INSULATING GLASS DATA – HIGH PERFORMANCE & SOLAR SERIES

Product	Outboard - Inboard Substrate	Appearance	Transmission			Reflectance			U-Value Winter Nighttime		Relative Heat Gain	Shading Coefficient	Solar Heat Gain Coefficient	Light to Solar Gain (LSG)
			Visible Light %	Ultra- violet %	Solar Energy %	Visible Light Out %	Visible Light In %	Solar Energy Out %						
									Air	Argon				
SunGuard High Performance			Coating #2 Surface - except where noted (#3)									6 mm/12 mm a.s./6 mm		
Neutral 78/65 (#3)	UltraWhite - UltraWhite	Ultra Clear	80	41	62	12	12	21	0.31	0.27	166	0.81	0.70	1.13
	Clear - Clear	Clear	78	38	54	13	12	19	0.31	0.27	155	0.75	0.65	1.19
Neutral 78/65	UltraWhite - UltraWhite	Ultra Clear	80	41	62	12	12	20	0.31	0.27	156	0.76	0.66	1.21
	Clear - Clear	Clear	78	38	54	13	13	17	0.31	0.27	145	0.71	0.62	1.27
Neutral 61	Clear - Clear	Neutral Pewter	61	27	34	20	15	31	0.30	0.26	95	0.45	0.40	1.53
	Green - Clear	Green	51	13	23	15	14	11	0.30	0.26	71	0.34	0.30	1.74
Neutral 50	Clear - Clear	Neutral Blue	50	30	32	16	11	19	0.33	0.29	94	0.45	0.39	1.27
	Green - Clear	Green	42	14	20	13	10	9	0.33	0.29	69	0.32	0.28	1.50
Neutral 40	Clear - Clear	Neutral Gray	40	26	25	20	12	22	0.33	0.29	78	0.37	0.32	1.25
	Green - Clear	Green	34	12	16	16	12	10	0.33	0.29	59	0.27	0.24	1.40
AG 50	UltraWhite - UltraWhite	Light Silver	51	29	31	28	18	42	0.30	0.25	83	0.40	0.35	1.49
	Clear - Clear	Light Silver	50	26	28	28	18	36	0.30	0.25	80	0.38	0.33	1.51
	Green - Clear	Green	43	12	19	21	18	14	0.30	0.25	62	0.29	0.25	1.68
	CrystalGray - Clear	Silver Gray	36	15	20	17	18	19	0.30	0.25	64	0.30	0.26	1.38
	Gray - Clear	Silver Gray	25	11	16	10	17	16	0.30	0.25	56	0.26	0.23	1.08
AG 43	UltraWhite - UltraWhite	Light Silver	42	25	26	30	15	39	0.31	0.26	74	0.35	0.30	1.37
	Clear - Clear	Light Silver	41	23	24	30	15	34	0.31	0.26	71	0.33	0.29	1.39
	Green - Clear	Green	35	11	15	23	14	14	0.31	0.26	55	0.26	0.23	1.52
	CrystalGray - Clear	Silver Gray	29	13	16	18	14	18	0.31	0.26	58	0.27	0.24	1.25
	Gray - Clear	Silver Gray	20	9	13	11	14	15	0.31	0.26	51	0.24	0.21	0.96
SunGuard Solar														
Silver 20	Clear - Clear	Silver	18	15	13	31	27	27	0.40	0.36	55	0.24	0.21	0.85
	Green - Clear	Silver Green	15	7	8	24	27	13	0.40	0.36	48	0.21	0.19	0.82
Other Guardian Low-E Products														
Neutral 70	Clear - Clear	Clear	68	43	46	11	12	16	0.33	0.29	127	0.61	0.53	1.27
Neutral 70 (#3)	Clear - Clear	Clear	68	43	46	13	11	19	0.33	0.29	148	0.72	0.62	1.09

NOTES RELATED TO ALL SUNGUARD PERFORMANCE TABLES:

- The performance values shown are nominal and subject to variations due to manufacturing tolerances. • All coatings are on the #2 surface unless noted otherwise.
- Guardian performance data are calculated in accordance with the LBNL Window 6 computer analysis using an air mass of 1.5.
- Relative Heat Gain, Shading Coefficient, Solar Heat Gain Coefficient and/or LSG may change slightly when using argon gas fill..
- Glass may require heat strengthening or tempering to resist potential thermal stresses. SNR 43 must be heat-treated.
- A slight shift in visible light reflectance or transmission may be noticed after heat-treatment. • Guardian recommends edge deletion for all commercial low-E coatings.
- Guardian reserves the right to change product performance characteristics without notice or obligation.

SUNGUARD®

ADVANCED ARCHITECTURAL GLASS

www.SunGuardGlass.com

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visit SunGuardGlass.com or call 1-866-GuardSG
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Please file in 088100 Glass.

HEARST CORPORATION
NEW YORK, NY, USA
ARCHITECT: Foster & Partners
GLAZIER: Permasteelisa
FABRICATOR: Zadra
GLASS: Guardian SunGuard
SuperNeutral Series