

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

BERLIN

QUEBEC

JACKSONVILLE

CAPE COD

PLOVDIV

BUDAPEST



70 CREMANZIE
HULL, QC, CANADA
ARCHITECT: Marcel Landry
GLAZIER: Vitrerie Vertech
FABRICATOR: Industries Cover

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



**CONCORDIA UNIVERSITY
MONTREAL, QC, CANADA**
ARCHITECT: KPMB Architects
GLAZIER: Oldcastle BuildingEnvelope
FABRICATOR: Trulite Glass &
Aluminum Solutions

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 2.31 and 2.19. SNX 62/27 reflects neutral color, SNX 51/23 is neutral 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 1.89 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 UltraClear™ float glass. UltraClear'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, CrystalBlue®, 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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BIRMINGHAM

CLEARWATER

LITTLE ROCK

MONTREAL

MADISON

DETROIT

COLUMBUS

KONSTANCIN

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 six 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.

AG 50

Neutral 50

Neutral 78/65

AG 43

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.

BROOKLYN

VIENNA

PITTSBURGH

BRUSSELS

SALT LAKE CITY

TOKYO

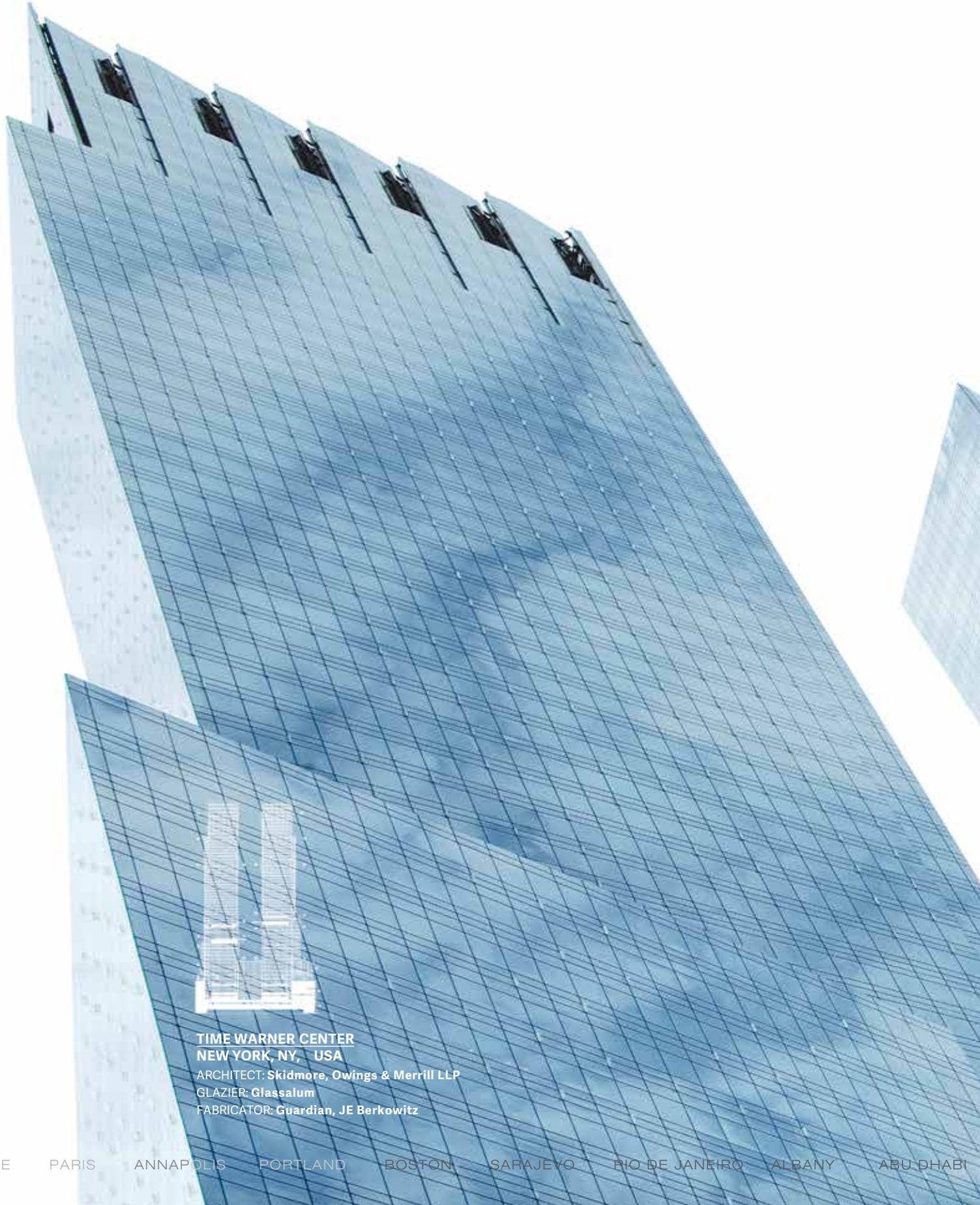
CAGLIARI

RICHMOND



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

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visit SunGuardGlass.com or call 1-866-GuardSG
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TIME WARNER CENTER
NEW YORK, NY, USA
ARCHITECT: Skidmore, Owings & Merrill LLP
GLAZIER: Glassalum
FABRICATOR: Guardian, JE Berkowitz

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
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NEWARK

PLYMOUTH

TEL AVIV

NEW YORK

TAMPA

ANN ARBOR

ORLANDO

CHICAGO

GUARDIAN Deco HT

SPANDREL GLASS

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 **Guardian Deco HT** back painted glass. Deco 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, Guardian Deco 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

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

TORONTO

WASHINGTON D.C.

KUWAIT CITY

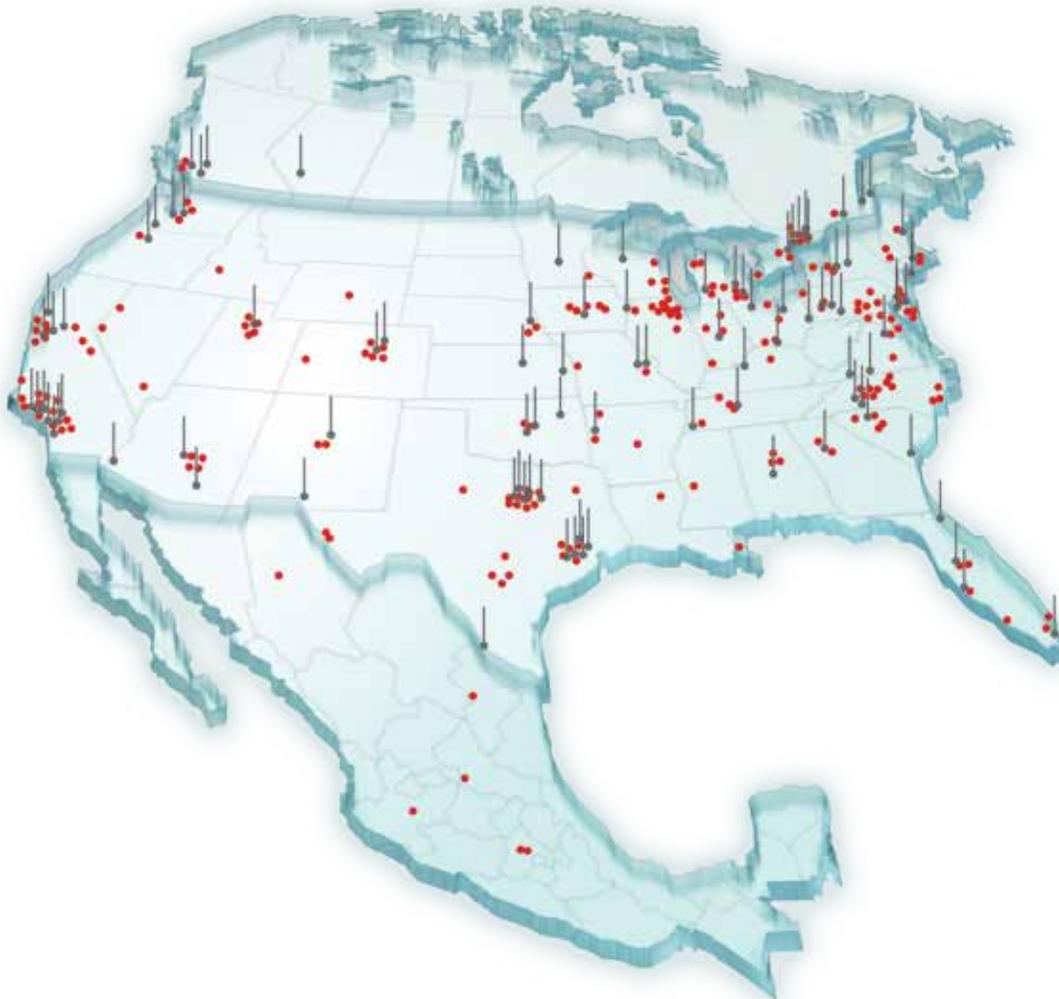
BRASILIA

BEIJING

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 GLASS

INNOVATION AND TECHNICAL SUPPORT

USGBC LEED Certification 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, Sustainability Calculator, 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.

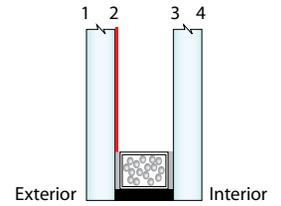
3-Part Specifications Guardian's SunGuard specifications in standard CSI 3-part format are available from your Guardian Architectural Design Manager (ADM) and at www.SunGuardGlass.com. Avitru, the exclusive publisher of AIA (the American Institute of Architects) MASTERSPEC®, has authorized Guardian to 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 Glass 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.

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

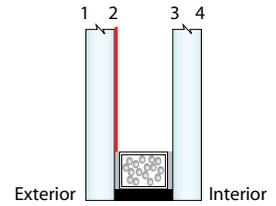


Performance Data – SuperNeutral

Product	Outboard - Inboard Substrate	Appearance	Transmittance			Reflectance			U-Value Winter Nighttime		Relative Heat Gain	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/12.7 mm a.s./6 mm				
SNX 62/27	UltraClear - UltraClear	Ultra Clear	64	8	24	11	13	51	0.29	0.24	65	0.27	2.40
	Clear - Clear	Clear	62	6	23	11	12	39	0.29	0.24	65	0.27	2.31
	Green - Clear	Green	52	3	18	9	12	10	0.29	0.24	59	0.24	2.13
	CrystalGray - Clear	Light Gray	44	3	16	8	11	19	0.29	0.24	54	0.22	1.98
	Gray - Clear	Gray	31	3	12	6	11	19	0.29	0.24	45	0.18	1.71
	CrystalBlue - Clear	Blue	40	4	15	7	11	25	0.29	0.24	51	0.21	1.91
SNX 51/23	UltraClear - UltraClear	Neutral Blue	53	14	20	14	14	46	0.29	0.24	57	0.23	2.28
	Clear - Clear	Neutral Blue	51	11	19	14	14	36	0.29	0.24	57	0.23	2.19
	Green - Clear	Blue-Green	43	5	15	11	13	10	0.29	0.24	52	0.22	1.99
	CrystalGray - Clear	Light Gray	36	6	14	9	13	18	0.29	0.24	48	0.20	1.85
	Gray - Clear	Gray	26	5	10	7	13	17	0.29	0.24	41	0.16	1.57
	CrystalBlue - Clear	Blue	33	7	13	9	13	23	0.29	0.24	46	0.19	1.78
SN 68	UltraClear - UltraClear	Ultra Clear	71	40	37	11	13	43	0.29	0.25	94	0.39	1.80
	Clear - Clear	Clear	68	30	33	11	12	33	0.29	0.25	90	0.38	1.80
	Green - Clear	Green	57	13	23	9	12	9	0.29	0.25	72	0.30	1.92
	CrystalGray - Clear	Light Gray	48	17	23	8	11	16	0.29	0.25	71	0.30	1.64
	Gray - Clear	Gray	34	13	18	6	11	16	0.29	0.25	61	0.25	1.37
	CrystalBlue - Clear	Blue	44	19	23	7	11	21	0.29	0.25	70	0.29	1.51
SN 54	UltraClear - UltraClear	Ultra Clear	56	22	26	13	19	44	0.29	0.24	69	0.29	1.96
	Clear - Clear	Clear	54	16	24	13	18	35	0.29	0.24	68	0.28	1.92
	Green - Clear	Green	45	7	17	11	18	10	0.29	0.24	58	0.24	1.89
	CrystalGray - Clear	Light Gray	38	9	17	9	18	17	0.29	0.24	56	0.23	1.67
	Gray - Clear	Gray	27	7	13	7	17	16	0.29	0.24	48	0.19	1.40
	CrystalBlue - Clear	Blue	35	10	16	8	17	22	0.29	0.24	54	0.22	1.57
SNR 43	UltraClear - UltraClear	Light Silver	45	24	21	28	14	54	0.29	0.24	56	0.23	1.96
	Clear - Clear	Light Silver	43	17	19	28	14	43	0.29	0.24	56	0.23	1.89
	Green - Clear	Green	36	8	14	21	14	14	0.29	0.24	50	0.20	1.78
	CrystalGray - Clear	Silver Gray	31	9	13	16	14	21	0.29	0.24	47	0.19	1.59
	Gray - Clear	Silver Gray	22	8	10	10	13	19	0.29	0.24	41	0.17	1.31
	CrystalBlue - Clear	Silver Blue	28	11	13	14	13	26	0.29	0.24	46	0.19	1.50

NOTES RELATED TO ALL SUNGUARD PERFORMANCE TABLES:

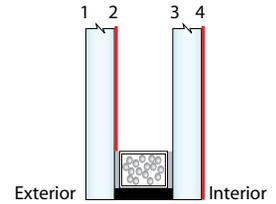
- The performance values shown are nominal and subject to variations due to manufacturing tolerances.
- All coatings are on the #2 surface unless noted otherwise.
- Guardian performance data are calculated for center-of-glass only (no spacer or framing) in accordance with the LBNL Window 7 program.
- Relative Heat Gain, Solar Heat Gain Coefficient and/or LSG may change slightly when using argon gas fill.
- Glass may require heat strengthening or tempering to resist thermal stress, to meet safety code, or other reasons.
- Most SunGuard coatings are available in annealed and heat-treatable versions. SNR 43 is only available in a heat-treatable version.
- A slight shift in visible light reflectance or transmission may be noticed after heat-treatment.
- Guardian requires edge deletion for all commercial low-E coatings.
- Guardian Glass reserves the right to change product performance characteristics without notice or obligation.



Performance Data – High Performance & Solar

Product	Outboard - Inboard Substrate	Appearance	Transmittance			Reflectance			U-Value Winter Nighttime		Relative Heat Gain	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/12.7 mm a.s./6 mm				
Neutral 78/65 (#3)	UltraClear - UltraClear	Ultra Clear	81	54	66	13	13	23	0.31	0.27	171	0.72	1.12
	Clear - Clear	Clear	78	39	55	13	13	19	0.31	0.27	156	0.66	1.18
Neutral 78/65	UltraClear - UltraClear	Ultra Clear	81	54	66	13	13	22	0.31	0.27	160	0.68	1.19
	Clear - Clear	Clear	78	39	55	13	13	18	0.31	0.27	147	0.62	1.26
Neutral 50	Clear - Clear	Neutral Blue	50	31	32	16	11	20	0.33	0.29	95	0.39	1.27
	Green - Clear	Green	42	13	20	13	10	9	0.33	0.29	68	0.28	1.50
Neutral 40	Clear - Clear	Neutral Gray	40	27	25	21	12	23	0.33	0.29	78	0.32	1.25
	Green - Clear	Green	34	11	16	16	12	10	0.33	0.29	59	0.24	1.40
AG 50	UltraClear - UltraClear	Light Silver	52	43	33	28	19	41	0.30	0.25	86	0.36	1.45
	Clear - Clear	Light Silver	50	30	29	27	19	34	0.30	0.25	82	0.34	1.48
	Green - Clear	Green	42	12	18	21	18	13	0.30	0.25	61	0.25	1.66
	CrystalGray - Clear	Silver Gray	35	16	20	16	18	18	0.30	0.25	64	0.26	1.34
	Gray - Clear	Silver Gray	25	12	16	10	18	16	0.30	0.25	57	0.23	1.08
AG 43	CrystalBlue - Clear	Silver Blue	32	17	20	14	18	21	0.30	0.25	65	0.27	1.20
	UltraClear - UltraClear	Light Silver	45	38	30	30	15	40	0.30	0.26	80	0.33	1.34
	Clear - Clear	Light Silver	43	26	26	30	15	33	0.30	0.26	76	0.31	1.37
	Green - Clear	Green	36	11	16	22	15	13	0.30	0.26	57	0.23	1.55
	CrystalGray - Clear	Silver Gray	30	14	18	17	14	18	0.30	0.26	60	0.25	1.23
Silver 20	Clear - Clear	Silver	18	16	14	30	30	26	0.37	0.33	56	0.22	0.81
	Green - Clear	Silver Green	15	7	8	23	30	12	0.37	0.33	46	0.18	0.83

Performance Data with SunGuard IS 20



Product	Outboard - Inboard Substrate	Appearance	Transmittance			Reflectance			U-Value Winter Nighttime		Relative Heat Gain	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/12.7 mm a.s./6 mm				
SNX 62/27 + IS 20	UltraClear - UltraClear	Ultra Clear	62	8	24	12	13	51	0.23	0.20	62	0.26	2.41
	Clear - Clear	Clear	60	6	22	12	13	40	0.23	0.20	62	0.26	2.33
SNX 51/23 + IS 20	UltraClear - UltraClear	Neutral Blue	51	13	20	14	14	46	0.23	0.20	54	0.22	2.31
	Clear - Clear	Neutral Blue	50	10	18	14	14	36	0.23	0.20	54	0.22	2.23
SN 68 + IS 20	UltraClear - UltraClear	Ultra Clear	69	37	36	12	13	43	0.24	0.20	91	0.38	1.80
	Clear - Clear	Clear	66	29	32	12	13	33	0.24	0.20	87	0.36	1.82
SN 54 + IS 20	UltraClear - UltraClear	Ultra Clear	54	20	25	14	19	44	0.24	0.20	67	0.28	1.97
	Clear - Clear	Clear	52	15	23	14	19	35	0.24	0.20	65	0.27	1.94
SNR 43 + IS 20	UltraClear - UltraClear	Light Silver	43	22	20	29	15	54	0.23	0.20	54	0.22	1.97
	Clear - Clear	Light Silver	42	17	18	28	15	43	0.23	0.20	53	0.22	1.92

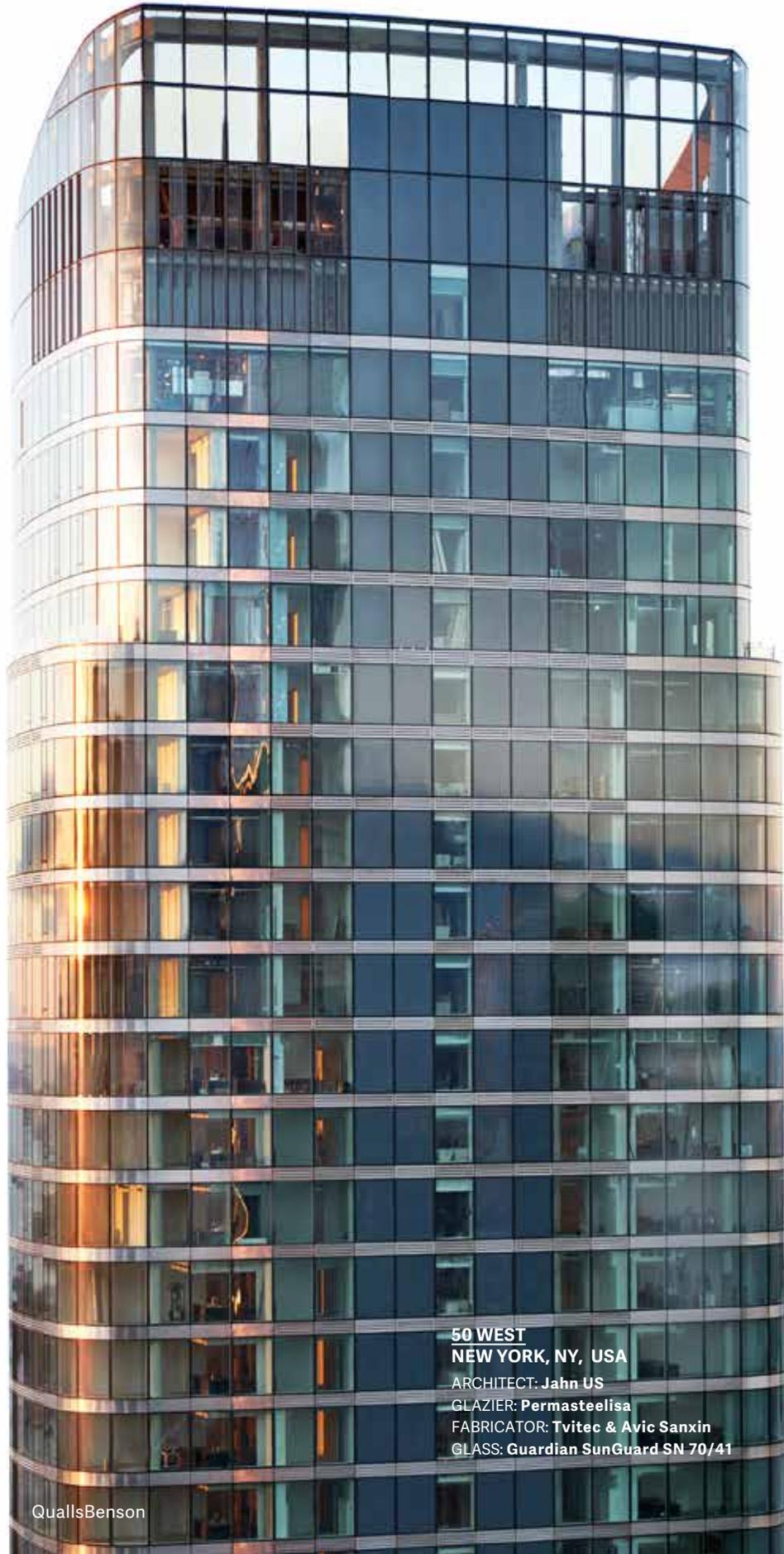
NOTES SPECIFIC TO THE SUNGUARD SUPERNEUTRAL w/IS 20 TABLE ABOVE:

- SunGuard IS 20 is on the #4 surface.
- SunGuard IS 20 is also available with SunGuard High Performance and Solar products.
- SunGuard IS 20 and SNR 43 must be heat treated.

www.SunGuardGlass.com

TO REQUEST SAMPLES

visit SunGuardGlass.com or call 1-866-GuardSG
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See what's possible™

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v.6.19

Please file in 088100 Glass.

50 WEST
NEW YORK, NY, USA
ARCHITECT: **Jahn US**
GLAZIER: **Permasteelisa**
FABRICATOR: **Tvitec & Avic Sanxin**
GLASS: **Guardian SunGuard SN 70/41**

QuallsBenson