

Product Data Sheet



Aesthetic Description

Solarban® 60 solar control, low-e glass by Vitro Architectural Glass (formerly PPG Glass) was engineered to control solar heat gain, which is essential to minimizing cooling costs. In a standard one-inch insulating glass unit (IGU), **Solarban® 60** glass offers an exterior appearance similar to clear, uncoated glass.

With a very good Solar Heat Gain Coefficient (SHGC) of 0.39, **Solarban® 60** glass blocks 66 percent of the total solar energy while allowing 70 percent of the visible light to pass through. This combination produces an excellent Light to Solar Gain (LSG) ratio of 1.79, along with exceptional insulating performance, as evidenced by its 0.29 winter nighttime U-value.

Aesthetic Options

Solarban® 60 glass can be coated on **Starphire®** glass and paired with **Starphire®** glass to produce an IGU with exceptional clarity and solar control characteristics. For even more color and performance options, it can be coated on the second (#2) surface of nearly all Vitro's wide range of tinted glasses. It also can be combined in an IGU with any Vitro tinted glass, **Solarcool®** reflective glass or **Vistacool®** subtly reflective, color-enhanced glass (see performance data on back page).



Prudential Center

Location: Newark, NJ | Product: **Solarban® 60** Glass | Architect: Morris Adjmi Architects | Glass Contractor: Josloff Glass | Glass Fabricator: J.E. Berkowitz, LP

Supporting Sustainable Design

Vitro Architectural Glass provides abundant opportunities for architects and building owners to realize their sustainability objectives.

Energy Use & Operating Cost Reduction: An energy modeling study conducted by an independent energy design and consulting firm showed that a building can potentially save millions of dollars over its lifetime with **Solarban® 60** glass instead of less advanced glasses. The study showed that by substituting **Solarban® 60** glass instead of dual-pane tinted glass, a typical glass-walled, eight-story office building in Boston could lower its initial HVAC investment by nearly \$350,000 and its annual energy costs by more than

\$80,000. Carbon emissions from the same building also were reduced by more than 300 tons per year.

Sustainability Documentation: Vitro Architectural Glass is the first U.S. float glass manufacturer to have its entire selection of products recognized by the **Cradle to Cradle Certified™** program, and the first in North America to publish third-party verified EPDs for its Flat Glass and Processed Glass products.

For additional credit opportunities and supporting documentation, visit vitroglazings.com/LEED

LEED Credit Opportunities

Possible Points	LEED Credit	Solarban® 60 Feature	Path/Option Satisfied
18	Energy & Atmosphere (EA) Optimize Energy Performance	Excellent SHGC, U-value and Tvis performance	Whole Building Energy Simulation (Option 1) or Prescriptive Compliance: ASHRAE Advanced Energy Design Guide (Option 2)
5	Innovation (IN) Innovation in Design	Exceeds minimum performance mandated by local energy codes	Innovation (Option 1), Pilot (Option 2) and Exemplary Performance (Option 3)
3	Indoor Environmental Quality (EQ) Daylight	Exhibits high light transmission	Simulation: Spatial Daylight Autonomy and Annual Sunlight Exposure (Option 1), Simulation: Illuminance Calculations (Option 2) or Measurement (Option 3)

Solarban® 60 Glass**Fabrication and Availability**

Solarban® 60 glass is available exclusively through the **Vetro Certified™** Network. **Vetro Certified™** Fabricators can meet tight construction deadlines and accelerate the delivery of replacement glass before, during and after construction. **Solarban® 60** glass is manufactured using the sputter-coating process and is available for annealed, laminated, heat-strengthened and tempered applications.

Request Samples

To obtain samples of any Vitro Glass product, call **1-855-VTRO-GLS (877-6457)** or visit samples.vitroglazings.com.

Insulating Glass Unit Performance Comparisons | 1-inch (25mm) units with 1/2-inch (13mm) airspace and two 1/4-inch (6mm) lites

Outdoor Lite: Coating if Any (Surface) Glass	Glass Type + Indoor Lite: Coating if Any (Surface) Glass	Visible Light Transmittance (VLT)	Visible Light Reflectance		(BTU/hr°ft²°F) NFRC U-Value		Solar Heat Gain Coefficient (SHGC)	Light to Solar Gain (LSG)
			Exterior %	Interior %	Winter Nighttime	Winter Argon		
Solarban® 60 Solar Control Low-E Glass								
	Solarban® 60 (2) Clear + Clear	70	11	12	0.29	0.24	0.39	1.79
	Solarban® 60 (2) Starphire® + Starphire®	74	11	12	0.29	0.24	0.41	1.80
	Solarban® 60 (2) Solexia® + Clear	61	9	12	0.29	0.24	0.32	1.91
	Solarban® 60 (2) Atlantica® + Clear	53	8	11	0.29	0.24	0.27	1.96
	Solarban® 60 (2) Azuria® + Clear	54	8	11	0.29	0.24	0.28	1.93
	Solarban® 60 (2) Solarblue® + Clear	45	7	11	0.29	0.24	0.28	1.61
	Solarban® 60 (2) Pacifica® + Clear	34	6	10	0.29	0.24	0.22	1.55
	Solarban® 60 (2) Solarbronze® + Clear	42	7	11	0.29	0.24	0.28	1.50
	Solarban® 60 (2) Optigray® + Clear	50	8	11	0.29	0.24	0.30	1.67
	Solarban® 60 (2) Solargray® + Clear	35	6	10	0.29	0.24	0.25	1.40
	Solexia® + Solarban® 60 (3) Clear	61	10	10	0.29	0.24	0.37	1.65
	Atlantica® + Solarban® 60 (3) Clear	53	9	10	0.29	0.24	0.31	1.71
	Azuria® + Solarban® 60 (3) Clear	54	9	10	0.29	0.24	0.31	1.74
	Solarblue® + Solarban® 60 (3) Clear	45	7	9	0.29	0.24	0.33	1.36
	Pacifica® + Solarban® 60 (3) Clear	34	6	9	0.29	0.24	0.25	1.36
	Solarbronze® + Solarban® 60 (3) Clear	42	7	9	0.29	0.24	0.32	1.31
	Optigray® + Solarban® 60 (3) Clear	50	8	9	0.29	0.24	0.35	1.43
	Solargray® + Solarban® 60 (3) Clear	35	7	9	0.29	0.24	0.29	1.21
	GraylitE II + Solarban® 60 (3) Clear	7	4	8	0.29	0.24	0.13	0.54

Vistacool® and Solarcool® with Solarban® 60 Solar Control Low-E (3)*

Vistacool® (2) Azuria® + Solarban® 60 (3) Clear	42	20	24	0.29	0.24	0.26	1.62
Vistacool® (2) Pacifica® + Solarban® 60 (3) Clear	26	11	23	0.29	0.24	0.21	1.24
Solarcool® (2) Solexia® + Solarban® 60 (3) Clear	24	24	29	0.29	0.24	0.19	1.26
Solarcool® (2) Azuria® + Solarban® 60 (3) Clear	21	19	29	0.29	0.24	0.17	1.24
Solarcool® (2) Solarblue® + Solarban® 60 (3) Clear	17	14	29	0.29	0.24	0.18	0.94
Solarcool® (2) Pacifica® + Solarban® 60 (3) Clear	13	10	29	0.29	0.24	0.15	0.87
Solarcool® (2) Solarbronze® + Solarban® 60 (3) Clear	17	14	29	0.29	0.24	0.18	0.94
Solarcool® (2) Solargray® + Solarban® 60 (3) Clear	14	11	29	0.29	0.24	0.17	0.82

* Data based on using Starphire® glass for both interior and exterior lites.

All performance data calculated using LBNL Window 7.3 software and represents center of glass performance data. For detailed information on the methodologies used to calculate the aesthetic and performance values in this table, please visit www.pgideas.com or request our Architectural Glass Catalog.

For more information about **Solarban® 60** low-e glass and other **Cradle to Cradle Certified™** architectural glasses by Vitro Glass, visit vitroglazings.com, or call **1-855-VTRO-GLS (877-6457)**.



Product Data Sheet



Aesthetic Description

Solarban® 70 glass (formerly *Solarban*® 70XL glass) is a solar control, low-e glass that brilliantly combines the clear appearance of transparent, color-neutral glass with an exceptional combination of solar control and visible light transmittance (VLT).

The world's first triple-silver, magnetron sputter vacuum deposition (MSVD) coating, *Solarban*® 70 glass expands the design possibilities for buildings in two important ways. First, *Solarban*® 70 glass enables architects to incorporate vast areas of vision glass into their designs without a corresponding increase in cooling equipment capacity.

Second, architects can specify a clear aesthetic while achieving solar control performance that was once attainable only through the use of tinted glass and a solar control, low-e coating in an insulated glass unit (IGU).

Performance Options

When coupled with conventional clear glass in a one-inch IGU, *Solarban*® 70 glass achieves a Visible Light Transmittance (VLT) of 64 percent and a Solar Heat Gain Coefficient (SHGC) of 0.27 to produce a Light to Solar Gain (LSG) ratio of 2.37, making it one of the industry's highest-performing glasses.

The clear aesthetic of *Solarban*® 70 glass also makes the product exceptionally versatile, offering architects an extensive array of performance and appearance options. For instance, for projects that require advanced solar control performance, *Solarban*® 70 glass can be coated on the second (#2) surface of nearly all of



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Location: Dallas, TX | Product: *Solarban*® 70XL Glass | Architect of Record: PageSouthernlandPage | Design Architect: Gromatzky Dupree & Associates | Glass Fabricator: Trulite Glass and Aluminum Solutions | Glazing Contractor: Haley-Greer

Vitre Architectural Glass' (formerly PPG glass) wide range of tinted glasses to produce SHGCs as low as 0.19 and LSG ratios ranging from 1.68 to 2.15.

For more color and reflectivity choices, *Solarban*® 70 glass may be specified on the third (#3) surface of an IGU behind a tinted lite or in combination with *Solarcool*® reflective or *Vistacool*® subtly reflective color-enhanced glasses.

Supporting Sustainable Design

Vitre Architectural Glass provides abundant opportunities for architects and building owners to realize their sustainability objectives.

Energy Use & Operating Cost Reduction: High-performance glasses by Vitre are engineered to facilitate downsized mechanical equipment costs, leading to reduced long-term energy costs. Visit tools.vitroglazings.com for glass comparison and configuration tools for analyzing glass products.

Sustainability Documentation: Vitre Architectural Glass is the first U.S. float glass manufacturer to have its entire selection of products recognized by the *Cradle to Cradle Certified*™ program, and the first in North America to publish third-party verified EPDs for its Flat Glass and Processed Glass products.

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LEED Credit Opportunities

Possible Points	LEED Credit	<i>Solarban</i> ® 70 Feature	Path/Option Satisfied
18	Energy & Atmosphere (EA) Optimize Energy Performance	Excellent SHGC, U-value and Tvis performance	Whole Building Energy Simulation (Option 1) or Prescriptive Compliance: ASHRAE Advanced Energy Design Guide (Option 2)
5	Innovation (IN) Innovation in Design	Exceeds minimum performance mandated by local energy codes	Innovation (Option 1), Pilot (Option 2) and Exemplary Performance (Option 3)
3	Indoor Environmental Quality (EQ) Daylight	Exhibits high light transmission	Simulation: Spatial Daylight Autonomy and Annual Sunlight Exposure (Option 1), Simulation: Illuminance Calculations (Option 2) or Measurement (Option 3)

Solarban® 70 glass

Insulating Glass Unit Performance Comparisons | 1-inch (25mm) units with 1/2-inch (13mm) airspace and two 1/4-inch (6mm) lites

Glass Type Outdoor Lite: Coating if Any (Surface) Glass + Indoor Lite: Coating if Any (Surface) Glass		Visible Light Transmittance (VLT)	Visible Light Reflectance		(BTU/hr ² ft ²⁰ °F) NFRC U-Value		Solar Heat Gain Coefficient (SHGC)	Light to Solar Gain (LSG)
			Exterior %	Interior %	Winter Nighttime	Winter Argon		
Solarban® 70 Solar Control Low-E Glass								
	Solarban® 70 (2) + Clear	64	12	13	0.28	0.24	0.27	2.37
	Solarban® 70 (2) Solexia® + Clear	58	10	13	0.28	0.24	0.27	2.15
	Solarban® 70 (2) Atlantica® + Clear	51	9	12	0.28	0.24	0.24	2.13
	Solarban® 70 (2) Azuria® + Clear	52	9	12	0.28	0.24	0.25	2.08
	Solarban® 70 (2) Solarblue® + Clear	42	8	12	0.28	0.24	0.23	1.83
	Solarban® 70 (2) Pacifica® + Clear	32	6	12	0.28	0.24	0.19	1.68
	Solarban® 70 (2) Solarbronze® + Clear	40	7	12	0.28	0.24	0.21	1.90
	Solarban® 70 (2) Optigray® + Clear	47	8	12	0.28	0.24	0.24	1.96
	Solarban® 70 (2) Solargray® + Clear	34	6	12	0.28	0.24	0.20	1.70
	Solexia® + Solarban® 70 (3) Clear	56	11	12	0.28	0.24	0.32	1.75
	Atlantica® + Solarban® 70 (3) Clear	49	10	11	0.28	0.24	0.28	1.75
	Azuria® + Solarban® 70 (3) Clear	49	9	11	0.28	0.24	0.29	1.69
	Solarblue® + Solarban® 70 (3) Clear	40	8	11	0.28	0.24	0.27	1.48
	Pacifica® + Solarban® 70 (3) Clear	31	6	10	0.28	0.24	0.22	1.41
	Solarbronze® + Solarban® 70 (3) Clear	38	8	11	0.28	0.24	0.26	1.46
	Optigray® + Solarban® 70 (3) Clear	45	9	11	0.28	0.24	0.29	1.55
	Solargray® + Solarban® 70 (3) Clear	32	7	11	0.28	0.24	0.24	1.33
	Graylite® II + Solarban® 70 (3) Clear	6	4	10	0.28	0.24	0.11	0.55

Vistacool® and Solarcool® with Solarban® 70 Solar Control Low-E (3)*

Vistacool® (2) Azuria® + Solarban® 70 (3)	38	21	23	0.28	0.24	0.24	1.58
Vistacool® (2) Pacifica® + Solarban® 70 (3)	24	11	22	0.28	0.24	0.19	1.26
Solarcool® (2) Solexia® + Solarban® 70 (3)	22	24	27	0.28	0.24	0.17	1.29
Solarcool® (2) Azuria® + Solarban® 70 (3)	19	19	27	0.28	0.24	0.15	1.27
Solarcool® (2) Solarblue® + Solarban® 70 (3)	16	14	27	0.28	0.24	0.15	1.07
Solarcool® (2) Pacifica® + Solarban® 70 (3)	12	10	27	0.28	0.24	0.13	0.92
Solarcool® (2) Solarbronze® + Solarban® 70 (3)	15	14	27	0.28	0.24	0.15	1.00
Solarcool® (2) Solargray® + Solarban® 70 (3)	13	11	27	0.28	0.24	0.14	0.93

*Solarban® 70 glass for annealed applications is applied to Starphire® glass, heat treated applications will require either clear or Starphire® glass depending on manufacturing process.

All performance data calculated using LBNL Window 7.3 software and represents center of glass performance data. For detailed information on the methodologies used to calculate the aesthetic and performance values in this table, please visit vitroglazings.com or request our Architectural Glass Catalog.

Fabrication and Availability

Solarban® 70 glass is available exclusively through the Vitro Certified™ Network. Vitro Certified™ Fabricators can meet tight construction deadlines and accelerate the delivery of replacement glass before, during and after construction. Solarban® 70 glass is manufactured using the sputter-coating process and is available for annealed, heat-strengthened and tempered applications.

Additional Resources

To obtain samples of any Vitro Glass product, call **1-855-VTRO-GLS (877-6457)** or visit samples.vitroglazings.com. For videos, design insights and technical education, visit the Vitro Glass Education Center at glassed.vitroglazings.com. For glass comparison and configuration tools, visit tools.vitroglazings.com.

For more information about Solarban® low-e glass and other Cradle to Cradle Certified™ architectural glasses by Vitro Glass, visit vitroglazings.com, or call **1-855-VTRO-GLS (887-6457)**.

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09/19



Product Data Sheet



For decades, architects have relied on the ever-expanding *Solarban*® family of solar control, low-e glasses by Vitro Architectural Glass (formerly PPG Glass) to meet their design and performance needs. *Solarban*® R100 glass's neutral-reflective appearance makes it among the most versatile options in this collection of high-performance architectural glasses.

Aesthetic Description

Solarban® R100 glass is a neutral-reflective, low-e glass that provides significant improvements in solar performance compared to competing products in the same architectural glass category.

Because *Solarban*® R100 glass uniquely balances reflectivity and color-neutrality, it can function both as a privacy glass and as a material that harmonizes with spandrels and other building materials.

Inside the building, *Solarban*® R100 glass has reflectance of just 14 percent and transmits a pleasant cool blue-gray appearance that reduces glare without creating an obtrusive reflected color for building occupants.

Outside, *Solarban*® R100 glass has exterior reflectance of 32 percent that combines with the neutral aesthetic to deliver a clean, crisp exterior for any building project.

Performance Options

Solarban® R100 glass has an excellent Solar Heat Gain Coefficient (SHGC) of 0.23 and a Visible Light Transmittance (VLT) of 42 percent. The resulting Light to Solar Gain (LSG) ratio of 1.83 is up to 29 percent better than competitive reflective, low-e glasses, making *Solarban*® R100 glass one of the best-performing architectural glass products on the market.

Because of its color-neutral appearance, *Solarban*® R100 glass can be applied to Vitro's wide range of tinted glasses. When used on the second surface in one-inch insulating glass units, these tints combine with *Solarban*® R100 glass to achieve LSG ratios of up to 1.71, while providing an exceptional array of aesthetic options.

Fabrication and Availability

Solarban® R100 glass is available through the *Vitro Certified*™ Network. *Vitro Certified*™ Fabricators can meet tight construction deadlines and accelerate the delivery of replacement glass before, during and after construction. *Solarban*® R100 glass is manufactured using the sputter-coating process and is available for laminated, heat-strengthened and tempered applications.

Request Samples

To obtain samples of any Vitro Glass product, visit samples.vitroglazings.com or call 1-855-VTRO-GLS (877-6457).



The HCA office building in Nashville, Tenn., features *Solarban*® R100 Glass by Vitro Architectural Glass.



The Daimler Trucks North American Headquarters in Portland, Ore., features *Solarban*® R100 Glass with *Solarban*® Glass by Vitro Architectural Glass.

Solarban® R100 glass

Supporting Sustainable Design

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LEED Credit Opportunities

Possible Points	LEED Credit	Solarban® R100 Feature	Path/Option Satisfied
18	Energy & Atmosphere (EA) Optimize Energy Performance	Excellent SHGC, U-value and Tvis performance	Whole Building Energy Simulation (Option 1) or Prescriptive Compliance: ASHRAE Advanced Energy Design Guide (Option 2)
5	Innovation (IN) Innovation in Design	Exceeds minimum performance mandated by local energy codes	Innovation (Option 1), Pilot (Option 2) and Exemplary Performance (Option 3)
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Insulating Glass Unit Performance Comparisons | 1-inch (25mm) units with 1/2-inch (13mm) airspace and two 1/4-inch (6mm) lites

Glass Type	Visible Light Transmittance (VLT)	Visible Light Reflectance		(BTU/hr·ft²·°F) NFRC U-Value		Solar Heat Gain Coefficient (SHGC)	Light to Solar Gain (LSG)
		Exterior %	Interior %	Winter Nighttime	Winter Argon		
Solarban® R100 Solar Control Low-E Glass							
Solarban® R100 (2) Clear + Clear	42	32	14	0.29	0.25	0.23	1.83
Solarban® R100 (2) Acuity™ + Acuity™	43	33	13	0.29	0.25	0.23	1.87
Solarban® R100 (2) Starphire® + Starphire®	44	33	14	0.29	0.25	0.23	1.91
Solarban® R100 (2) Solexia® + Clear	36	25	13	0.29	0.25	0.21	1.71
Solarban® R100 (2) Atlantica® + Clear	32	20	13	0.29	0.25	0.19	1.68
Solarban® R100 (2) Azuria® + Clear	32	21	13	0.29	0.25	0.19	1.68
Solarban® R100 (2) Optiblue® + Clear	30	19	13	0.29	0.24	0.20	1.50
Solarban® R100 (2) Solarblue® + Clear	26	15	13	0.29	0.25	0.19	1.37
Solarban® R100 (2) Pacifica® + Clear	20	11	13	0.29	0.25	0.16	1.25
Solarban® R100 (2) Solarbronze® + Clear	25	15	13	0.29	0.25	0.18	1.39
Solarban® R100 (2) Optigray® + Clear	29	18	13	0.29	0.25	0.20	1.45
Solarban® R100 (2) Solargray® + Clear	21	12	13	0.29	0.25	0.17	1.24

All performance data calculated using LBNL Window 7.3 software and represents center of glass performance data. For detailed information on the methodologies used to calculate the aesthetic and performance values in this table, please visit vitroglazings.com or request our Architectural Glass Catalog.

For more information about Solarban® low-e glass and other *Cradle to Cradle Certified™* architectural glasses by Vitro Glass, visit vitroglazings.com, or call 1-855-VTRO-GLS (887-6457).

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