Guardian AG 43 Disc.- Guardian SNR 43 - Guardian SNR 50 - Viracon VRE-38 - Viracon VRE-46 - Vitro Solarban R100

Make-up Name	Make-up Icon	Visible Light				Ultraviolet	Solar Energy			Thermal Properties		Light to Solar Gain (LSG)
		Transmittance	Reflectance		Color Rendering Index (R_a)	Trans UV (τ_{uv} %)	Transmittance	Reflectance	Solar Heat Gain Coefficient (SHGC)	U-Value		
		Visible (τ_v %)	ρ_v % out	ρ_v % in			Solar (τ_e %)	ρ_e % out		Winter Night (Btu/hr·ft²·F)	Summer Day (Btu/hr·ft²·F)	
Guardian AG 43 on Clear - Discontinued		43	30	15	93.5	26	26	33	0.31	0.257	0.237	1.39
Guardian SNR 43 on Clear		43	28	14	91.1	17	19	43	0.22	0.240	0.212	1.94
Guardian SNR 50 on Clear		48	26	17	91.3	19	21	42	0.25	0.241	0.214	1.96
Viracon VRE-38 on Clear		37	45	22	92.2	13	19	48	0.23	0.247	0.223	1.60
Viracon VRE-46 on Clear		45	36	17	93.5	15	26	45	0.29	0.249	0.225	1.55
Vitro Solarban R100 on Clear		42	32	14	90.3	12	19	41	0.23	0.244	0.218	1.84

Calculation Standard: NFRC 2010

Guardian AG 43 on Clear - Discontinued

Outdoors

GLASS 1	Guardian Clear Glass (North America) Thickness = 1/4" (6mm)	#1 ----- #2 SunGuard® AG 43 (NA) - Disc.
GAP 1	10% Air, 90% Argon, 1/2" (12.7mm)	
GLASS 2	Guardian Clear Glass (North America) Thickness = 1/4" (6mm)	#3 ----- #4 -----

Total Unit (Nominal) = 1 in Slope = 90° Window Height = 1 meter

Estimated Nominal Glazing Weight: 5.75 lb/ft²

Indoors

Guardian SNR 43 on Clear

Outdoors

GLASS 1	Guardian Clear Glass (North America) Thickness = 1/4" (6mm)	#1 ----- #2 SunGuard® SNR 43 (North America)
GAP 1	10% Air, 90% Argon, 1/2" (12.7mm)	
GLASS 2	Guardian Clear Glass (North America) Thickness = 1/4" (6mm)	#3 ----- #4 -----

Total Unit (Nominal) = 1 in | Slope = 90° | Window Height = 1 meter

Estimated Nominal Glazing Weight: 5.75 lb/ft²

Indoors

SNR 43 must be heat-treated for all applications and uses.

Guardian SNR 50 on Clear

Outdoors

GLASS 1	Guardian Clear Glass (North America) Thickness = 1/4" (6mm)	#1 ----- #2 SunGuard® SNR 50 (North America)
GAP 1	10% Air, 90% Argon, 1/2" (12.7mm)	
GLASS 2	Guardian Clear Glass (North America) Thickness = 1/4" (6mm)	#3 ----- #4 -----

Total Unit (Nominal) = 1 in | Slope = 90° | Window Height = 1 meter

Estimated Nominal Glazing Weight: 5.75 lb/ft²

Indoors

Viracon VRE-38 on Clear

Outdoors

GLASS 1	Guardian Clear Glass (North America) Thickness = 1/4" (6mm)	#1 ----- #2 VRE-38 Reflective Low-E (IGDB)
GAP 1	10% Air, 90% Argon, 1/2" (12.7mm)	
GLASS 2	Guardian Clear Glass (North America) Thickness = 1/4" (6mm)	#3 ----- #4 -----

Total Unit (Nominal) = 1 in | Slope = 90° | Window Height = 1 meter

Estimated Nominal Glazing Weight: 5.75 lb/ft²

Indoors

Viracon VRE-46 on Clear

Outdoors

GLASS 1	Guardian Clear Glass (North America) Thickness = 1/4" (6mm)	#1 ----- #2 VRE-46 Reflective Low-E (IGDB)
GAP 1	10% Air, 90% Argon, 1/2" (12.7mm)	
GLASS 2	Guardian Clear Glass (North America) Thickness = 1/4" (6mm)	#3 ----- #4 -----

Total Unit (Nominal) = 1 in | Slope = 90° | Window Height = 1 meter

Estimated Nominal Glazing Weight: 5.75 lb/ft²

Indoors

Vitro Solarban R100 on Clear

Outdoors

GLASS 1	Vitro Clear glass USA (IGDB) Thickness = 1/4" (6mm)	#1 ----- #2 Vitro Solarban® R100 (IGDB)
GAP 1	10% Air, 90% Argon, 1/2" (12.7mm)	
GLASS 2	Guardian Clear Glass (North America) Thickness = 1/4" (6mm)	#3 ----- #4 -----

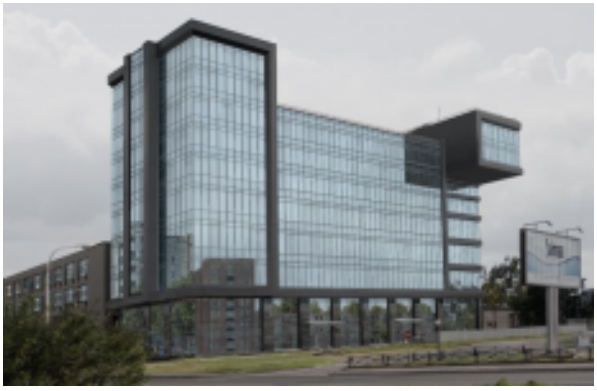
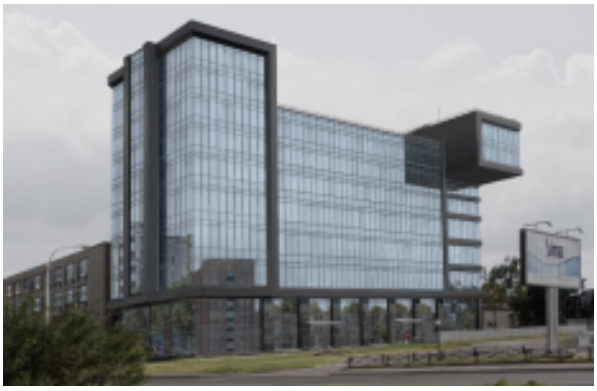
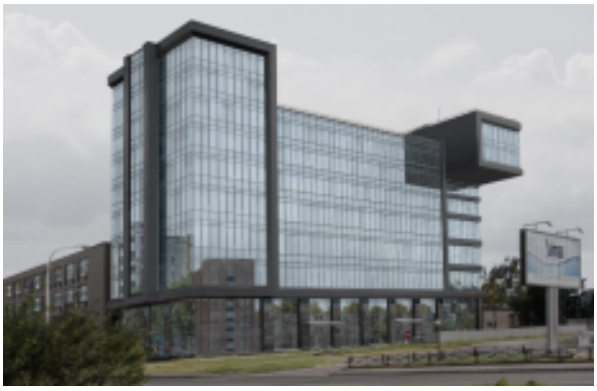
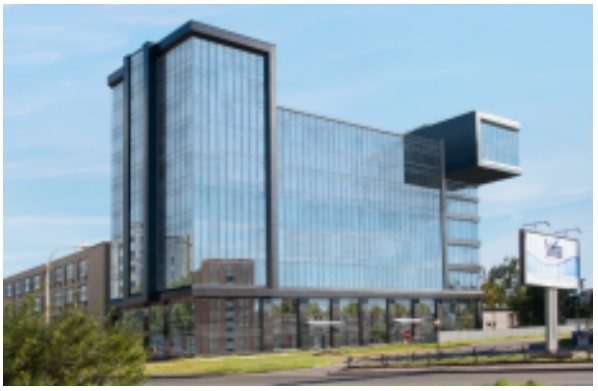
Total Unit (Nominal) = 1 in | Slope = 90° | Window Height = 1 meter

Estimated Nominal Glazing Weight: 5.75 lb/ft²

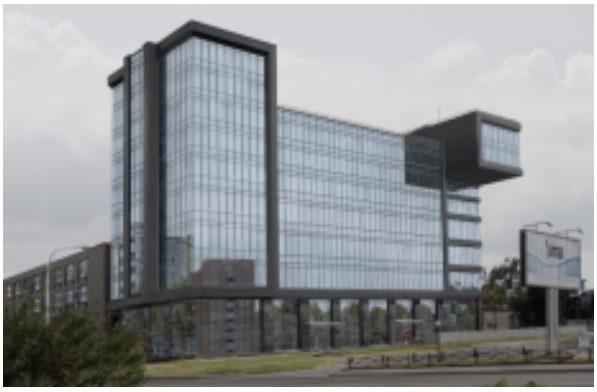
Indoors

Visualizer

Exterior C3

	Cloudy Day	Full Daylight
Guardian AG 43 on Clear - Discontinued		
Guardian SNR 43 on Clear		
Guardian SNR 50 on Clear		
Viracon VRE-38 on Clear		

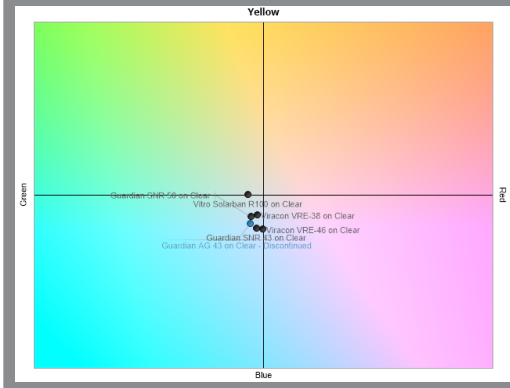
Viracon VRE-46 on Clear



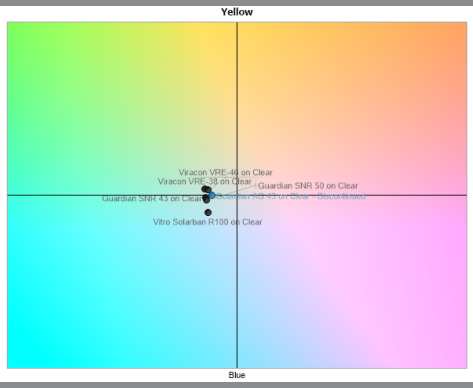
Vitro Solarban R100 on Clear

Color Comparison Chart:

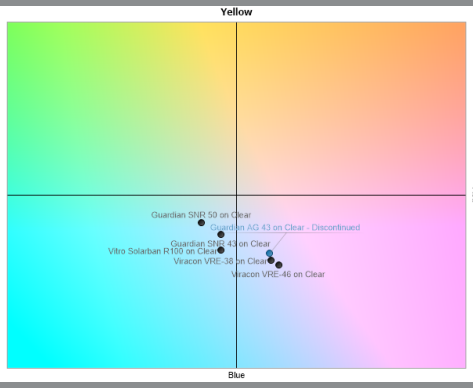
Outdoor Reflected Color



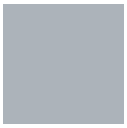
Transmitted Color



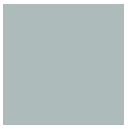
Indoor Reflected Color



RGB Color Information: Outdoor Reflected Color

 R = 137 G = 150 B = 159 Guardian AG 43 on Clear - Discontinued	 R = 134 G = 145 B = 157 Guardian SNR 43 on Clear	 R = 131 G = 141 B = 148 Guardian SNR 50 on Clear	 R = 172 G = 179 B = 186 Viracon VRE-38 on Clear
 R = 154 G = 162 B = 175 Viracon VRE-46 on Clear	 R = 148 G = 155 B = 153 Vitro Solarban R100 on Clear		

RGB Color Information: Transmitted Color

 R = 167 G = 178 B = 175 Guardian AG 43 on Clear - Discontinued	 R = 164 G = 179 B = 176 Guardian SNR 43 on Clear	 R = 173 G = 187 B = 186 Guardian SNR 50 on Clear	 R = 153 G = 166 B = 160 Viracon VRE-38 on Clear
 R = 171 G = 182 B = 177 Viracon VRE-46 on Clear	 R = 159 G = 176 B = 180 Vitro Solarban R100 on Clear		

RGB Color Information: Indoor Reflected Color

 R = 106 G = 105 B = 130 Guardian AG 43 on Clear - Discontinued	 R = 91 G = 107 B = 120 Guardian SNR 43 on Clear	 R = 96 G = 117 B = 124 Guardian SNR 50 on Clear	 R = 127 G = 127 B = 155 Viracon VRE-38 on Clear
 R = 112 G = 111 B = 141 Viracon VRE-46 on Clear	 R = 86 G = 105 B = 124 Vitro Solarban R100 on Clear		

Important Notes

Calculations and terms in this report are based on NFRC 2010. The performance values shown above represent nominal values for the center of glass with no spacer system or framing.

Laminated products:
The Performance Calculator allows the user to model a wide variety of laminated glass makeups using different float glass substrates, coatings and interlayer material, including those makeups where the coating faces the interlayer. It is the user's responsibility to assess whether the laminated glass makeup meets relevant regional standards and complies with applicable laminated glass safety regulations.

In addition, when the laminated glass makeup includes a coating facing the interlayer material, there may be a loss of thermal insulation performance and a color change compared to non-embedded coated class.

Non-specular products (translucent or diffuse):
The performance measurement for non-specular (translucent or diffuse) materials such as translucent interlayers or acid etched glass surface, or surface with ceramic frit is limited by the current experimental technologies. Since measurements capture physically only a part of the resulting radiation, calculated performance results provided herein and based on such measurements are not compliant with any standard (including EN 410) and may only be used as a general reference. Actual values may vary significantly based upon exact fabrication process, as well as type, thickness and color of used non-specular material.

Please note that the Thermal Stress Guideline is only a general guide to the thermal safety of a glazing, and it is not a replacement for detailed thermal stress analysis.

Explanation of Terms

Visible Light Transmittance (Tv, %) is the percentage of incident light in the wavelength range of 380 nm to 780 nm that is transmitted by the glass.

Ultraviolet (UV) Transmittance (Tuv, %) is the percentage of the incident solar radiation transmitted by the glazing in the 300 nm to 380 nm range.

Solar Energy Direct Transmittance (Te, %) is the percentage of incident solar energy in the wavelength range of 300 nm to 2500 nm that is directly transmitted by the glass.

Visible Light Reflectance Outdoors/Indoor (Rv out/in, %) is the percentage of incident visible light directly reflected by the glass.

Solar Direct Reflectance Outdoors/Indoors (Re out/in, %) is the percentage of incident solar energy directly reflected by the glass.

Solar Energy Absorptance (Ae, %) is the percentage of the sun's energy that is absorbed by glass.

U-Value is the glazing parameter that characterizes the heat transfer through the central part of the glazing, i.e. without edge effects, and expresses the steady-state density of heat transfer rate per temperature difference between the environmental temperatures on each side. US Standard units are Btu/hr·ft²·F and SI / Metric units are W/m2 K.

Relative Heat Gain (RHG) is the total net heat gain to the indoors due to both the air-to-air thermal conductance and the solar heat gain. US Standard units are Btu/hr.ft² and SI / Metric units are W/m².

Shading Coefficient (sc) is Solar Factor divided by 0.87. It is a measure of the solar heat gain referenced to 3 mm clear glass which has the designated value of 1.00.

Solar Heat Gain Coefficient (SHGC) is the sum of the solar direct transmittance and the secondary heat transfer factor of the glazing towards the inside, the latter resulting from heat transfer by convection and longwave IR-radiation of that part of the incident solar radiation which has been absorbed by the glazing.

Light-to-Solar Gain (LSG) is the ratio of visible light gain to solar gain. LSG = (Visible Transmittance) / (SHGC)

Color Rendering Index in transmission, D65 (R_a) is the change in color of an object as a result of the light being transmitted by the glass.

Weighted Sound Reduction Index (Rw) is a single-number quantity which characterizes the airborne sound insulation of a material or building element over a range of frequencies.

Sound Transmission Class (STC) is a single-number quantity which characterizes the airborne sound insulation of a material or building element over a range of frequencies.

Disclaimer

This performance analysis is provided for the limited purpose of assisting the user in evaluating the performance of the glass products identified on this report.

Spectral data for products manufactured by Guardian reflect nominal values derived from typical production samples or CE Initial Type Testing and subject to variations due to manufacturing and calculation tolerances. Spectral data for products not manufactured by Guardian were derived from the LBNL International Glazing Database and have not been independently verified by Guardian. Guardian recommends a full-size mock-up be approved.

The values provided herein are generated according to established engineering practices and applicable calculation standards. Many factors may affect glazing characteristics, including glass size, building orientation, shading, wind speed, type of installation, production process and others. The applicability and results of the analysis are directly related to user inputs and any changes in actual conditions can have a significant effect on the results. It is the responsibility of the users of the analysis to ensure that the intended application is appropriate and complies with all relevant laws, regulations, standards, codes of practices, processing guidelines and other requirements. Guardian makes no guarantee that any glazing modeled herein is available from Guardian or any other manufacturer. The user has the responsibility to check with the manufacturer regarding availability of any glass type or make-up.

While Guardian has made a good faith effort to verify the reliability of the tools used for this analysis, they may contain unknown programming errors that could result in inaccurate results. The user assumes all risk relating to the results provided and is solely responsible for selection of appropriate products for user's application. Guardian makes no express or implied warranty of any kind with respect to the tools used by Guardian and this analysis. There are no warranties of merchantability, non-infringement or fitness for a particular purpose with respect to the tools used by Guardian and this analysis and no warranty shall be implied by operation of law or otherwise. The only warranties applicable to Guardian products are those separately provided in writing for each product. In no event shall Guardian be liable for direct, indirect, special, consequential or incidental damages of any kind relating to or resulting from use of Guardian tools and analyses.

Program Version: 4.1.0.9269
Database Version: 20220309