

Laminated Glass

SunGuard[®] Laminated Glass

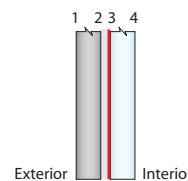
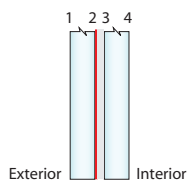
SAFETY AND HURRICANE PROTECTION.

Many SunGuard coatings can be used in laminated glass applications to meet a variety of project requirements. When two or more panes of glass are bonded together by a durable plastic interlayer, it enables the glass to resist penetration by impacting objects - you can't see it, but the benefits are clear. If it should break, the glass will tend to remain in its frame, minimizing the risk of injury from sharp edges and flying or falling glass particles.

In coastal areas prone to tropical storms and hurricanes, including the entire gulf and east coast, SunGuard coatings used in laminated configurations can play a crucial role in meeting building regulatory codes. Depending on the thickness of the glass and PVB, SunGuard laminated glass can achieve either of the two windborne debris impact category ratings as required by the Miami-Dade County building code and protect the interior of buildings from the potential destruction of stormy weather.

At a glance

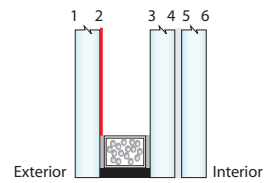
- Excellent solar control.
- Can provide sound attenuation, security, safety and hurricane protection.
- Capable of withstanding small & large missile tests for hurricane codes.
- A variety of glass makeups, performance and appearance options.



Laminated Glass Data

Product	Outboard - Inboard Substrate	Appearance	Transmittance			Reflectance			U-Value		Relative Heat Gain	Solar Heat Gain Co-efficient	Light to Solar Gain (LSG)
			Visible Light %	Ultra-violet %	Solar Energy %	Visible Light Out %	Visible Light In %	Solar Energy Out %	Winter Night	Summer Day			
SuperNeutral - coating #2 surface													6 mm/0.090 PVB/6 mm
SNX-L 62/34	Clear/Clear	Clear	61	0	24	15	16	40	0.94	0.85	90	0.34	1.80
	Clear/Green	Green	51	0	18	14	13	40	0.94	0.85	82	0.30	1.68
	Clear/CrystalGray	Light Gray	43	0	17	14	10	39	0.94	0.85	81	0.30	1.46
	Clear/Gray	Gray	31	0	13	13	7	39	0.94	0.85	75	0.27	1.14
	Clear/CrystalBlue	Blue	39	0	16	14	9	39	0.94	0.85	80	0.29	1.35
SN-L 68 HT	Clear/Clear	Clear	67	0	29	11	11	34	0.94	0.85	103	0.40	1.69
	Clear/Green	Green	56	0	21	10	9	33	0.94	0.85	92	0.34	1.63
	Clear/CrystalGray	Light Gray	47	0	21	10	8	33	0.94	0.85	91	0.34	1.39
	Clear/Gray	Gray	34	0	16	9	6	33	0.94	0.85	85	0.31	1.07
	Clear/CrystalBlue	Blue	43	0	20	10	7	33	0.94	0.85	91	0.34	1.27
Solar Control - coating #2 surface													
Silver 20	Clear/Clear	Silver	19	0	14	30	24	27	0.94	0.85	83	0.31	0.62
	Green/Clear	Green	16	0	8	22	24	12	0.94	0.85	82	0.31	0.52
SuperNeutral - coating #3 surface with tinted outboard lite													
SNX-L 62/34	Green/Clear	Green	51	0	18	13	14	10	0.94	0.85	102	0.39	1.31
	CrystalGray/Clear	Light Gray	43	0	17	11	14	17	0.94	0.85	95	0.36	1.19
	Gray/Clear	Gray	31	0	13	8	13	16	0.94	0.85	89	0.33	0.92
	CrystalBlue/Clear	Blue	39	0	16	10	14	21	0.94	0.85	91	0.34	1.15
SN-L 68 HT	Green/Clear	Green	56	0	21	9	10	8	0.94	0.85	108	0.42	1.34
	CrystalGray/Clear	Light Gray	47	0	21	8	10	12	0.94	0.85	106	0.41	1.17
	Gray/Clear	Gray	34	0	16	6	9	12	0.94	0.85	98	0.37	0.90
	CrystalBlue/Clear	Blue	43	0	20	7	10	15	0.94	0.85	103	0.40	1.09

- Other combinations of float glass and coatings may be available. Please contact Guardian for assistance.
- When SunGuard coatings are laminated facing the PVB, there will be a noticeable color change when compared to standard insulated applications. Guardian recommends a full size mock-up be approved.



Insulating Glass Data w/Lami Inboard

Product	Outboard - Inboard Substrate	Appearance	Transmittance			Reflectance			U-Value Winter Nighttime		Relative Heat Gain	Solar Heat Gain Co-efficient	Light to Solar Gain (LSG)
			Visible Light %	Ultra-violet %	Solar Energy %	Visible Light Out %	Visible Light In %	Solar Energy Out %	Air	Argon			
SuperNeutral			Coating #2 Surface						6 mm/12.7 mm a.s./6 mm/0.090 PVB/6 mm				
SNE 50/25	UltraClear - UC/UC	Blue-Silver	49	0	21	19	17	51	0.28	0.23	61	0.25	1.94
	Clear - Clr/Clr	Blue-Silver	46	0	19	19	17	40	0.28	0.23	60	0.25	1.87
	CrystalGray - Clr/Clr	Blue-Gray	33	0	14	12	16	20	0.28	0.23	50	0.21	1.59
	CrystalBlue - Clr/Clr	Light Blue	30	0	13	11	16	25	0.28	0.23	49	0.20	1.51
SNX 62/27	UltraClear - UC/UC	Ultra Clear	63	0	23	11	12	51	0.28	0.23	64	0.26	2.37
	Clear - Clr/Clr	Clear	59	0	21	11	12	39	0.28	0.23	64	0.26	2.25
	Green - Clr/Clr	Green	50	0	17	9	11	10	0.28	0.23	58	0.24	2.09
	CrystalGray - Clr/Clr	Light Gray	42	0	15	8	11	19	0.28	0.23	53	0.22	1.94
	Gray - Clr/Clr	Gray	30	0	11	6	10	19	0.28	0.23	44	0.18	1.67
	CrystalBlue - Clr/Clr	Blue	38	0	14	7	11	25	0.28	0.23	50	0.21	1.87
SNX 51/23	UltraClear - UC/UC	Neutral Blue	52	0	19	14	14	45	0.28	0.23	56	0.23	2.26
	Clear - Clr/Clr	Neutral Blue	49	0	17	14	13	36	0.28	0.23	56	0.23	2.14
	Green - Clr/Clr	Blue-Green	41	0	14	11	12	10	0.28	0.23	51	0.21	1.95
	CrystalGray - Clr/Clr	Light Gray	35	0	12	9	12	18	0.28	0.23	47	0.19	1.81
	Gray - Clr/Clr	Gray	25	0	9	7	12	17	0.28	0.23	40	0.16	1.54
	CrystalBlue - Clr/Clr	Blue	32	0	12	9	12	23	0.28	0.23	45	0.18	1.74
SN 68	UltraClear - UC/UC	Ultra Clear	69	0	34	11	12	42	0.28	0.24	92	0.39	1.79
	Clear - Clr/Clr	Clear	66	0	30	11	12	33	0.28	0.24	89	0.37	1.77
	Green - Clr/Clr	Green	55	0	21	9	11	9	0.28	0.24	70	0.29	1.88
	CrystalGray - Clr/Clr	Light Gray	47	0	21	8	11	16	0.28	0.24	70	0.29	1.61
	Gray - Clr/Clr	Gray	33	0	16	6	10	16	0.28	0.24	59	0.24	1.35
	CrystalBlue - Clr/Clr	Blue	42	0	21	7	11	21	0.28	0.23	69	0.29	1.49
SN 54	UltraClear - UC/UC	Ultra Clear	55	0	24	13	18	44	0.28	0.24	68	0.28	1.94
	Clear - Clr/Clr	Clear	52	0	21	13	17	34	0.28	0.24	67	0.28	1.88
	Green - Clr/Clr	Green	44	0	16	10	17	10	0.28	0.24	57	0.24	1.85
	CrystalGray - Clr/Clr	Light Gray	37	0	15	9	17	17	0.28	0.24	55	0.23	1.64
	Gray - Clr/Clr	Gray	26	0	12	7	16	16	0.28	0.24	47	0.19	1.37
	CrystalBlue - Clr/Clr	Blue	34	0	15	8	16	22	0.28	0.23	53	0.22	1.54
SNR 43	UltraClear - UC/UC	Light Silver	44	0	19	28	14	54	0.28	0.23	55	0.23	1.94
	Clear - Clr/Clr	Light Silver	41	0	17	28	13	43	0.28	0.23	55	0.22	1.86
	Green - Clr/Clr	Green	35	0	13	21	13	14	0.28	0.23	49	0.20	1.75
	CrystalGray - Clr/Clr	Silver Gray	29	0	12	16	13	21	0.28	0.23	46	0.19	1.56
	Gray - Clr/Clr	Silver Gray	21	0	9	10	13	19	0.28	0.23	40	0.16	1.29
	CrystalBlue - Clr/Clr	Silver Blue	27	0	12	14	13	26	0.28	0.23	45	0.18	1.47
High Performance													
Neutral 78/65	UltraClear - UC/UC	Ultra Clear	79	0	60	13	13	21	0.30	0.26	158	0.67	1.19
	Clear - Clr/Clr	Clear	75	0	47	13	12	18	0.30	0.26	143	0.60	1.25
Neutral 50	Clear - Clr/Clr	Neutral Blue	48	0	27	16	10	20	0.32	0.28	92	0.38	1.26
	Green - Clr/Clr	Green	40	0	17	13	10	9	0.32	0.28	66	0.27	1.49
Neutral 40	Clear - Clr/Clr	Neutral Gray	39	0	21	20	11	23	0.32	0.28	76	0.31	1.24
	Green - Clr/Clr	Green	32	0	14	16	11	10	0.32	0.28	57	0.23	1.39
AG 50	UltraClear - UC/UC	Light Silver	51	0	30	28	19	41	0.29	0.25	85	0.35	1.44
	Clear - Clr/Clr	Light Silver	48	0	25	27	18	34	0.29	0.25	80	0.33	1.46
	Green - Clr/Clr	Green	40	0	16	20	17	13	0.29	0.25	60	0.25	1.64
	CrystalGray - Clr/Clr	Silver Gray	34	0	17	16	17	18	0.29	0.25	63	0.26	1.32
	Gray - Clr/Clr	Silver Gray	24	0	14	10	17	16	0.29	0.25	55	0.23	1.06
	CrystalBlue - Clr/Clr	Silver Blue	31	0	17	14	17	21	0.29	0.25	63	0.26	1.19
AG 43	UltraClear - UC/UC	Light Silver	44	0	27	30	15	40	0.29	0.25	79	0.33	1.34
	Clear - Clr/Clr	Light Silver	41	0	22	29	14	33	0.29	0.25	74	0.30	1.36
	Green - Clr/Clr	Green	35	0	14	22	14	13	0.29	0.25	55	0.23	1.53
	CrystalGray - Clr/Clr	Silver Gray	29	0	15	17	14	18	0.29	0.25	59	0.24	1.22
	Gray - Clr/Clr	Silver Gray	21	0	12	11	13	15	0.29	0.25	52	0.21	0.97
	CrystalBlue - Clr/Clr	Silver Blue	27	0	16	15	14	20	0.29	0.25	60	0.24	1.09
Solar Control													
Silver 20	Clear - Clr/Clr	Silver	17	0	11	30	28	26	0.36	0.32	53	0.21	0.82
	Green - Clr/Clr	Green	15	0	7	23	28	12	0.36	0.32	44	0.18	0.83

- Guardian performance data are calculated for center-of-glass only (no spacer or framing) in accordance with LBNL Window 7 program.
- Relative Heat Gain, Solar Heat Gain Coefficient and/or LSG may change slightly when using argon gas fill.
- The performance values shown are nominal and subject to variations due to manufacturing tolerances.
- Guardian reserves the right to change product performance characteristics without notice or obligation.
- Other laminated options are available, contact your guardian representative for more information.
- Changes in PVB thickness have little effect on performance figures shown above.