

JEBERKOWITZ, LP

ARCHITECTURAL GLASS SINCE 1920

JEB FUSION™
Laminated Glass



JEB FUSION™

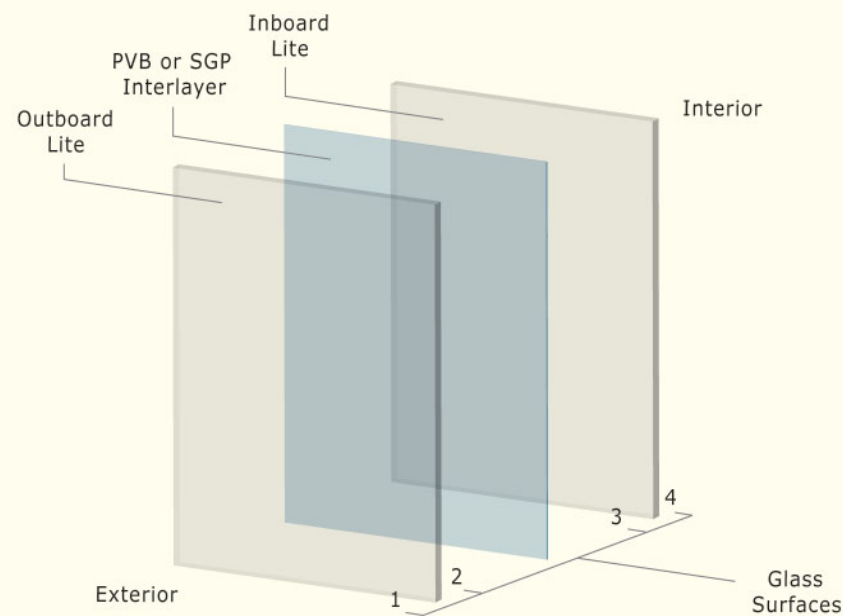
Laminated Glass (PVB)



Proven Success

Since 1920, J. E. Berkowitz L. P. has been a leader in the glass fabrication industry serving both domestic and international markets. We continue to expand our product offerings with the opening in 2007 of our new fabrication facility and corporate headquarters in Pedricktown, New Jersey. The state-of-the-art 200,000 square foot facility sits on 23 acres. In addition to housing our new laminating line, it includes multiple automated glass cutting, heat-treating, insulating, decorating and fabrication lines.

JEB Fusion™ Laminate



Laminating Process

Laminated glass is produced by sandwiching one or more layers of PVB or structural interlayer (SGP) material between multiple lites (two or more) of glass and applying a combination of heat and pressure to permanently “fuse” the layers together, creating JEB Fusion™ Laminated Glass.

This is accomplished through a nip roll¹ and autoclave² process. In this process, the air is pushed out from between the glass and the interlayer, sealing the components together. The pre-laminate is then put through an autoclave where heat and pressure are applied, resulting in the finished laminate.

¹ The nip roll process uses specialized rollers and ovens to press air from between the glass and the interlayer(s). The end result is a pre-laminate.

² The autoclave process is the final step in the laminating process. Here the pre-laminate is placed inside a vessel (autoclave) that employs high pressure and heat, permanently bonding the pre-laminate to create a laminated glass product.

Quality

Laminated glass product quality starts with the flatness of glass. When processing heat-treated laminated glass products, flatness is crucial for optimum clarity. Our tempering ovens produce the flattest architectural glass in the industry, with an internal quality target roller-wave distortion of .003" peak-to-valley and at a 1/32" bow and warp per linear foot (half of ASTM C1048).

Our state-of-the-art laminating line has a maximum size of 96" x 180" with an autoclave that can support a maximum load capacity of 10,000 lbs. The line includes a glass washer, lay-up line, dual-stage infrared ovens with pinch roll presses and a clean room. The clean room is temperature and humidity controlled, insuring the highest level of cleanliness of the final product. In addition, an attached cold storage room preserves the cleanliness and physical properties of the PVB materials used in the laminating process.

J. E. Berkowitz has partnered with world-class PVB and structural interlayer supplier DuPont™, to help provide the expertise and support to produce the highest quality annealed and heat-treated laminated products in the industry.

Applications

JEB Fusion™ Laminated Glass is an ideal choice to meet the demands of increasingly complex architectural designs and can be used in a wide variety of applications, including:

- Insulating Glass (IG) Units
- Safety
- Security
- Sound Control
- Solar Control
- UV Protection
- Noise Reduction
- Wind / Storm / Hurricane Resistance
- Blast Mitigation
- Skylights
- Balustrades / Railings
- Point-Supported Walls & Canopies

Standard colors stocked:

- DuPont™ Butacite® Clear
 - DuPont™ Butacite® Translucent White # 0216500
- These interlayers can be laminated with clear, tint, pyrolytic and sputter-coated low-e substrates. A variety of color options can be achieved by combining tinted glass substrates with a clear or translucent white interlayer.

Sizes

- Minimum: 12" x 12"
- Maximum: 96" x 180"

Laminated Glass Thicknesses

- Minimum: 1/4" Laminated Glass (1/8" - .030 PVB - 1/8")
- Maximum: 1-9/16" Laminated Glass (3/4" - .090 PVB - 3/4")*

* Please consult customer service for additional thicknesses at (800)257-7827.

Quick Ship

Our “Quick Ship” Program allows us to provide *annealed* laminates in 1/4", 7/16" and 9/16" clear and 1/4" white laminate, cut from 84" x 130" stock sheets, with “next day” availability. Contact us for specific details about this program at (800) 257-7827.

Certification

Laminates made with .030" (.76mm) PVB (or thicker) will meet the requirements for CPSC 16 CFR 1201 Category I and II, ANSI Z97.1 Class A and B, and CAN/ CGBS 12.1 M Category I and II. JEB also meets the requirements of ASTM C1172 Standard Specification for Laminated Architectural Flat Glass.

DuPont™ Butacite® PVB Interlayer has received Miami Dade County's Product Control Notice of Acceptance (NOA).

These products are tested and certified by the Safety Glass Certification Council (SGCC) for third party certification.

JEB FUSION™ Laminated Glass (PVB)

SentryGlas® EXPRESSIONS™ Using DuPont™ Technology Digitally-Printed PVB Interlayer



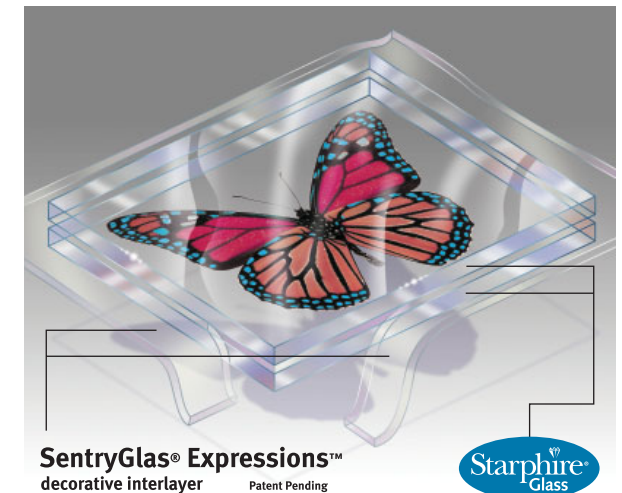
Solar And Sound Characteristics

JEB Fusion™ Laminated Glass with Clear Interlayer											
Laminate Color	Nominal Laminate Thickness	Make-Up			Visible Light		U-Factor	SC	SHGC	STC	OITC
		Outboard Lite	PVB	Inboard Lite	Reflectance % (Outdoor)	U-Factor					
Clear	1/4"	1/8" Clear	0.030 Clear	1/8" Clear	88	8	1.00	0.91	0.79	28	28
Clear	5/16"	1/8" Clear	0.060 Clear	1/8" Clear	88	8	0.98	0.90	0.78	31	31
Clear	5/16"	1/8" Clear	0.090 Clear	1/8" Clear	88	8	0.96	0.89	0.77	32	32
Clear	3/8"	3/16" Clear	0.030 Clear	3/16" Clear	86	8	0.98	0.86	0.74	33	33
Clear	7/16"	3/16" Clear	0.060 Clear	3/16" Clear	86	8	0.96	0.85	0.74	32	32
Clear	7/16"	3/16" Clear	0.090 Clear	3/16" Clear	86	8	0.94	0.84	0.73	32	32
Clear	1/2"	1/4" Clear	0.030 Clear	1/4" Clear	85	8	0.97	0.84	0.73	39	33
Clear	9/16"	1/4" Clear	0.060 Clear	1/4" Clear	85	8	0.95	0.83	0.72	39	33
Clear	9/16"	1/4" Clear	0.090 Clear	1/4" Clear	85	8	0.93	0.83	0.72	39	33
Gray	9/16"	1/4" Gray	0.060 Clear	1/4" Clear	43	5	0.95	0.61	0.53	39	33
Green	9/16"	1/4" Green	0.060 Clear	1/4" Clear	74	7	0.95	0.66	0.57	39	33
Bronze	9/16"	1/4" Bronze	0.060 Clear	1/4" Clear	49	5	0.95	0.65	0.56	39	33
Blue	9/16"	1/4" Blue	0.060 Clear	1/4" Clear	55	6	0.95	0.65	0.56	39	33

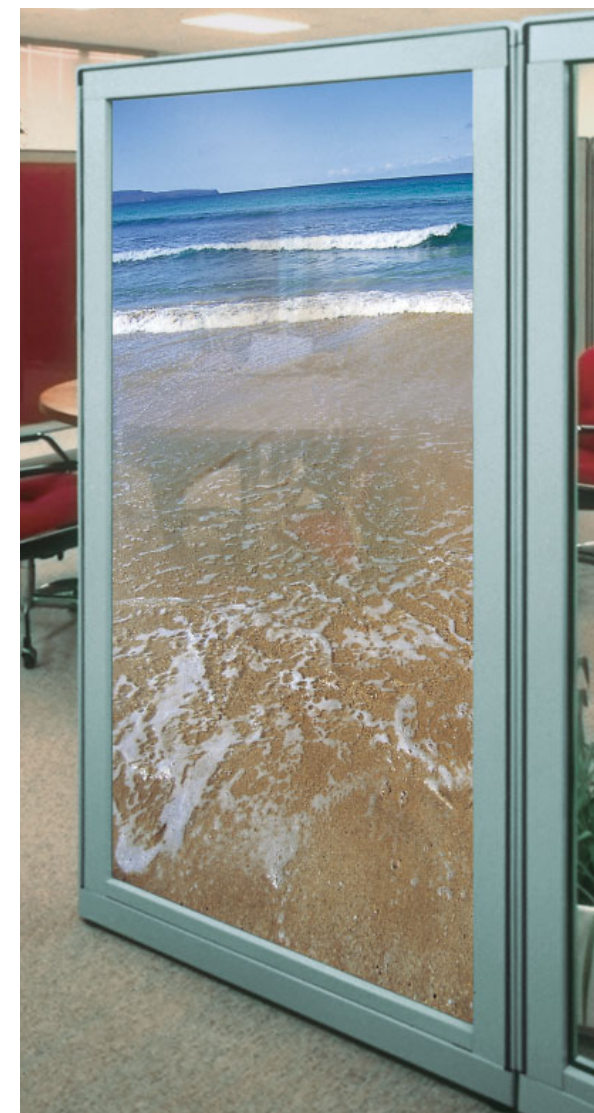
JEB Fusion™ Laminated Glass with White Interlayer											
Laminate Color	Nominal Laminate Thickness	Make-Up			Visible Light		U-Factor	SC	SHGC	STC	OITC
		Outboard Lite	PVB	Inboard Lite	Reflectance % (Outdoor)	U-Factor					
White	1/4"	1/8" Clear	0.030 Trans. White	1/8" Clear	63	6	1.01	0.77	0.66	34	28
White	5/16"	1/8" Clear	0.060 Trans. White	1/8" Clear	63	6	0.99	0.76	0.66	34	31
White	5/16"	1/8" Clear	0.090 Trans. White	1/8" Clear	63	6	0.97	0.76	0.65	35	32
White	3/8"	3/16" Clear	0.030 Trans. White	3/16" Clear	61	6	0.99	0.73	0.63	36	33
White	7/16"	3/16" Clear	0.060 Trans. White	3/16" Clear	61	6	0.97	0.72	0.62	36	32
White	7/16"	3/16" Clear	0.090 Trans. White	3/16" Clear	61	6	0.95	0.72	0.62	36	32
White	1/2"	1/4" Clear	0.030 Trans. White	1/4" Clear	61	6	0.97	0.72	0.63	38	33
White	9/16"	1/4" Clear	0.060 Trans. White	1/4" Clear	61	6	0.95	0.71	0.62	39	33
White	9/16"	1/4" Clear	0.090 Trans. White	1/4" Clear	61	6	0.94	0.71	0.61	39	33

SentryGlas® Expressions™ Decorative Laminated Glass

SentryGlas® Expressions™ takes decorative glass to a new level by combining the patented technology of high-resolution SentryGlas® Expressions™ digitally-printed PVB interlayers with our precision architectural glass fabrication capabilities. The result is a decorative laminated safety glass with a digital image embedded inside.



SentryGlas® Expressions™ is a fast, efficient way to produce exact images or pattern designs with high definition and vivid color to create a dramatic effect in vision or non-vision areas. Low-iron glass is recommended with SentryGlas® Expressions™ interlayer for optimal clarity and color.



Available in a wide range of transparency options.

Benefits

- ✓ Photo-Accurate Reproduction
- ✓ Fast Proofs and Easy Digital Revisions for Processing
- ✓ Image Protected from External Damage
- ✓ Permits a Wide-Range of Opacity, Color Gradients and Tones
- ✓ Allows You the Creativity to Use Vivid Colors and Intricate Designs

*SentryGlas® Expressions™ is a trademark of DuPont and is used under license by JE Berkowitz, LP.

SentryGlas®

Using DuPont™ Ionoplast Interlayer



SentryGlas® Laminated Glass

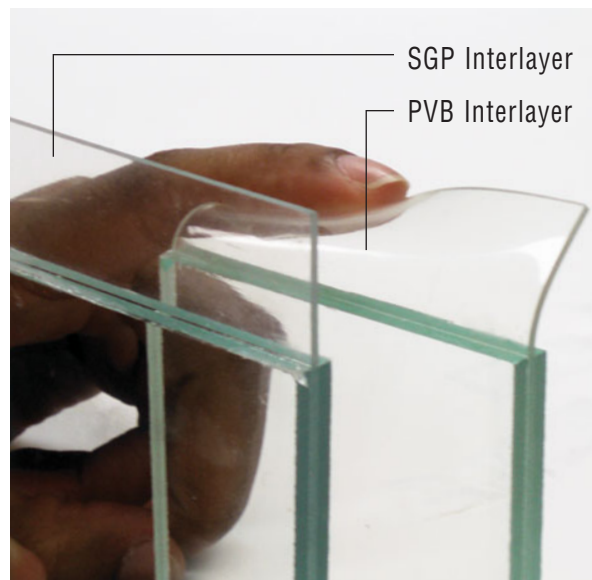
SentryGlas® is a unique **ionoplast structural interlayer** offering unmatched clarity. Through a combination of low-iron glass and SentryGlas® interlayer, laminated glass has a look of near invisibility.



SentryGlas® interlayer is able to withstand greater wind forces and maintain better building protection. It has also received Miami Dade County's Product Control Notice of Acceptance (NOA).

In addition, **SentryGlas®** outperforms conventional PVB in edge stability testing, making it your first choice for JEB Invisiwall™ applications

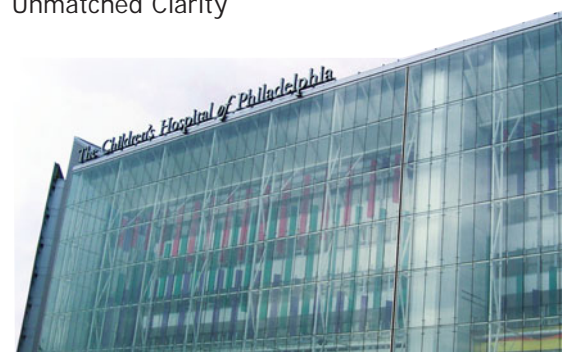
with exposed edges (canopies, handrails and point supported walls). SentryGlas® is available in .035, .060, and .090 thicknesses.



SentryGlas® is approximately 100 times stiffer and five times stronger than conventional interlayers, making it an ideal choice for hurricane glass and other structurally demanding applications.

Benefits

- ✓ Better Edge Stability than PVB, Making it the Correct Choice for Point-Supported and Exposed Edge Applications
- ✓ Approximately Five Times Stronger than PVB, Allowing for Thinner Laminates of Equal or Greater Strength
- ✓ Meets Miami Dade County's Product Control Notice of Acceptance (NOA) for Hurricane-Resistance
- ✓ Unmatched Clarity



Light And Solar Control Characteristics

JEB Fusion Plus™ Laminated Glass with Dupont™ SGP Interlayer									
Laminate Color	Nominal Laminate Thickness	Make-Up			Visible Light		U-Factor	SC	SHGC
		Outboard Lite	SGP	Inboard Lite	Transmittance %	Reflectance % (Outdoor)			
Clear	5/16"	1/8" Clear	0.060 SGP	1/8" Clear	88	8	0.99	0.89	0.77
Clear	7/16"	3/16" Clear	0.060 SGP	3/16" Clear	86	8	0.97	0.85	0.73
Clear	9/16"	1/4" Clear	0.060 SGP	1/4" Clear	85	8	0.95	0.83	0.72

- Exposed Edges
- Structural Applications
- Hurricane Codes
- Blast Mitigation
- UV Control
- Sound Attenuation



Taking Glass Fabrication To The Next Level



CONTACTS

For product selection assistance, project-specific applications, technical support and pricing, please contact JEB at (800) 257-7827.

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