Laminated Glass

Proven Success

Since 1920, J.E. Berkowitz, LP (JEB), has been a leader in the glass fabrication industry serving both domestic and international markets. The family-owned glass business is located in Pedricktown, N.J., at a state-of-the-art 253,000 square-foot-facility that sits on 23 acres. In addition to housing our fully integrated laminating line, it includes multiple automated glass cutting, heat-treating, insulating, decorating and fabrication lines.

JEB Fusion™ Laminated Glass

Laminating Process

Laminated glass is produced by sandwiching one or more layers of Polyvinyl butyral (PVB) or structural interlayer (SGP) material between multiple (two or more) lites 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.
Laminated Glass

Quality
Laminated glass quality starts with the flatness of the 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 the ASTM C1048 standard).

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, ensuring the highest level of cleanliness for 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.

JEB has partnered with world-class PVB and structural interlayer suppliers Kuraray Americas, Inc., and Eastman, to 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 Units (IGUs)
- Safety
- Security
- Sound Control
- Solar Control
- UV Protection
- Noise Reduction
- Wind / Storm / Hurricane Resistance
- Blast Mitigation
- Skylights
- Balustrades / Railings
- Point-Supported Walls and Canopies

Standard Colors Available
- Kuraray Butacite® Clear
- Kuraray Butacite® Translucent White # 0216500

These interlayers can be laminated with clear, tinted, 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. Acoustical interlayers also are available.

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.

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

Kuraray 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.
Laminated Glass

Solar Control and Sound Characteristics – Clear Interlayer

<table>
<thead>
<tr>
<th>Laminate Color</th>
<th>Nominal Laminate Thickness</th>
<th>Makeup</th>
<th>Visible Light</th>
<th>Reflectance (Outdoor)</th>
<th>U-Factor</th>
<th>SC</th>
<th>SHGC</th>
<th>STC</th>
<th>OITC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear</td>
<td>1/4”</td>
<td>1/8” Clear, 0.030</td>
<td>1/8” Clear</td>
<td>88%</td>
<td>8%</td>
<td>1.00</td>
<td>0.91</td>
<td>0.79</td>
<td>35</td>
</tr>
<tr>
<td>Clear</td>
<td>5/16”</td>
<td>1/8” Clear, 0.060</td>
<td>1/8” Clear</td>
<td>88%</td>
<td>8%</td>
<td>0.98</td>
<td>0.90</td>
<td>0.78</td>
<td>35</td>
</tr>
<tr>
<td>Clear</td>
<td>3/8”</td>
<td>3/16” Clear, 0.030</td>
<td>3/16” Clear</td>
<td>86%</td>
<td>8%</td>
<td>0.98</td>
<td>0.86</td>
<td>0.74</td>
<td>36</td>
</tr>
<tr>
<td>Clear</td>
<td>7/16”</td>
<td>3/16” Clear, 0.060</td>
<td>3/16” Clear</td>
<td>86%</td>
<td>8%</td>
<td>0.96</td>
<td>0.85</td>
<td>0.74</td>
<td>37</td>
</tr>
<tr>
<td>Clear</td>
<td>1/2”</td>
<td>1/4” Clear, 0.030</td>
<td>1/4” Clear</td>
<td>85%</td>
<td>8%</td>
<td>0.97</td>
<td>0.84</td>
<td>0.73</td>
<td>38</td>
</tr>
<tr>
<td>Clear</td>
<td>9/16”</td>
<td>1/4” Clear, 0.060</td>
<td>1/4” Clear</td>
<td>85%</td>
<td>8%</td>
<td>0.95</td>
<td>0.83</td>
<td>0.72</td>
<td>39</td>
</tr>
<tr>
<td>Gray</td>
<td>9/16”</td>
<td>1/4” Gray, 0.060</td>
<td>1/4” Clear</td>
<td>43%</td>
<td>5%</td>
<td>0.95</td>
<td>0.61</td>
<td>0.53</td>
<td>39</td>
</tr>
<tr>
<td>Green</td>
<td>9/16”</td>
<td>1/4” Green, 0.060</td>
<td>1/4” Clear</td>
<td>74%</td>
<td>7%</td>
<td>0.95</td>
<td>0.66</td>
<td>0.57</td>
<td>39</td>
</tr>
<tr>
<td>Bronze</td>
<td>9/16”</td>
<td>1/4” Bronze, 0.060</td>
<td>1/4” Clear</td>
<td>49%</td>
<td>5%</td>
<td>0.95</td>
<td>0.65</td>
<td>0.56</td>
<td>39</td>
</tr>
<tr>
<td>Blue</td>
<td>9/16”</td>
<td>1/4” Blue, 0.060</td>
<td>1/4” Clear</td>
<td>55%</td>
<td>6%</td>
<td>0.95</td>
<td>0.65</td>
<td>0.56</td>
<td>39</td>
</tr>
</tbody>
</table>
# Laminated Glass

## Solar Control and Sound Characteristics – White Interlayer

<table>
<thead>
<tr>
<th>Laminate Color</th>
<th>Nominal Laminate Thickness</th>
<th>Makeup</th>
<th>Visible Light</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Outboard Lite</td>
<td>PVB Trans. White</td>
<td>Inboard Lite</td>
<td>Transmittance</td>
<td>Reflectance (Outdoor)</td>
<td>U-Factor</td>
<td>SC</td>
<td>SHGC</td>
<td>STC</td>
</tr>
<tr>
<td>White</td>
<td>1/4&quot;</td>
<td>1/8&quot; Clear</td>
<td>0.030</td>
<td>1/8&quot; Clear</td>
<td>63%</td>
<td>6%</td>
<td>1.01</td>
<td>0.77</td>
<td>0.66</td>
<td>35</td>
</tr>
<tr>
<td>White</td>
<td>5/16&quot;</td>
<td>1/8&quot; Clear</td>
<td>0.060</td>
<td>1/8&quot; Clear</td>
<td>63%</td>
<td>6%</td>
<td>0.99</td>
<td>0.76</td>
<td>0.66</td>
<td>35</td>
</tr>
<tr>
<td>White</td>
<td>3/8&quot;</td>
<td>3/16&quot; Clear</td>
<td>0.030</td>
<td>3/16&quot; Clear</td>
<td>61%</td>
<td>6%</td>
<td>0.99</td>
<td>0.73</td>
<td>0.63</td>
<td>36</td>
</tr>
<tr>
<td>White</td>
<td>7/16&quot;</td>
<td>3/16&quot; Clear</td>
<td>0.060</td>
<td>3/16&quot; Clear</td>
<td>61%</td>
<td>6%</td>
<td>0.97</td>
<td>0.72</td>
<td>0.62</td>
<td>37</td>
</tr>
<tr>
<td>White</td>
<td>1/2&quot;</td>
<td>1/4&quot; Clear</td>
<td>0.030</td>
<td>1/4&quot; Clear</td>
<td>61%</td>
<td>6%</td>
<td>0.97</td>
<td>0.72</td>
<td>0.63</td>
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<tr>
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<td>9/16&quot;</td>
<td>1/4&quot; Clear</td>
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<td>6%</td>
<td>0.95</td>
<td>0.71</td>
<td>0.62</td>
<td>39</td>
</tr>
</tbody>
</table>
**SentryGlas®**

*Using Kuraray Ionoplast Interlayer*

**SentryGlas® Laminated Glass**

SentryGlas® laminated glass features a unique ionoplast structural interlayer, offering unmatched clarity. When combined with low-iron glass, SentryGlas® laminated glass is nearly invisible.

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

In addition, SentryGlas® laminated glass 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.

**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

**Available Colors**

- Clear
- Translucent white

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

Using Kuraray Ionoplast Interlayer

Light and Solar Control Characteristics

<table>
<thead>
<tr>
<th>Laminate Color</th>
<th>Nominal Laminate Thickness</th>
<th>Make-Up</th>
<th>Visible Light</th>
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<th>SHGC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear</td>
<td>7/16&quot;</td>
<td>3/16&quot; Clear 0.060&quot; 3/16&quot; Clear</td>
<td>86% 8%</td>
<td>0.97</td>
<td>0.85</td>
<td>0.73</td>
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<tr>
<td>Clear</td>
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<td>1/4&quot; Clear 0.060&quot; 1/4&quot; Clear</td>
<td>85% 8%</td>
<td>0.95</td>
<td>0.83</td>
<td>0.72</td>
</tr>
<tr>
<td>Clear</td>
<td>13/16&quot;</td>
<td>3/8&quot; Clear 0.060&quot; 3/8&quot; Clear</td>
<td>84% 8%</td>
<td>0.92</td>
<td>0.79</td>
<td>0.68</td>
</tr>
</tbody>
</table>

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

Using Kuraray Ionoplast Interlayer

AtlantiCare
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 or info@jeberkowitz.com.

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Architect: FXFOWLE Epstein

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