

Quality Guidelines for SAFTI *FIRST* Fire Resistive Glass

The demand for glazing and specifically glazing mandated in fire rated applications has created a new generation of technologically advanced high-performance glazing products. They are asked to be strong, energy efficient and protect against disasters of all types. These special products include incorporating fire performance with energy performance, bomb blast, hurricane, ballistic, etc. capabilities while providing natural light and views where previously the only alternative was a solid wall.

Fire rated Resistive specialty glass products tested to ASTM E-119/UL 263/CAN-ULC S101 (applications over 45 minutes) lead the field of these specialty glazing. Resistive glazing advances have spurred entirely different types of products and created extremely precise, complex and controlled manufacturing processes. These highly technical Resistive glazing products are new to many glazing professionals, and the performance expectations process of construction, and characteristics of these fire Resistive specialty products may not be fully understood.

One misunderstanding is that of fire rated glazing's optical characteristics, as no industry standards have been developed for evaluating these advanced fire rated glass products. Even with the best practices and meticulous attention to quality control, the inherent nature of these products and the intricate processes in manufacturing them can lead to what are considered "optical irregularities." These "irregularities" do not affect either the overall view or fire rated performance of the product and can be experienced in all fire Resistive rated glazing made today. These "irregularities" generally occur as small bubbles, particulate, or distortion.

In 1981, SAFTI *FIRST* was the first to bring a fire Resistive product to the U.S. market by being the first to U.L. test, market and sell a listed and labeled product. And in 1986, SAFTI *FIRST* was the first and only company to have independently developed and successfully tested a patented U.S. made Resistive glazing product. Our pioneering and educational efforts are the reason why the building codes now allow the use of these specialty glazing products in critical fire Resistive areas such as lot lines, exits, occupancy separations, and more.

Resistive products like SuperLite II-XL and SuperLite II-XLB use fully tempered glass. Use of this glazing gives our products improved resistance to thermal stress and the increased strength to meet the highest safety rating required by CPSC Cat. II requirements and make it an easier and safer product to install.

These Resistive products are comprised of multiple tempered glass lites spaced for the fire rating desired and filled with clear fire Resistive SRIIL (SEMI-RIGID-INTUMESCENT-INTERLAYER). These products are tested and treated as a *wall* designed to block fire, smoke, and limit the spread of dangerous radiant heat. They may look like any other window or storefront glazing, but these technologically advanced fire Resistive glazing products must test and perform the same function as a solid gypsum or masonry wall mandated in 1- and 2-hour fire Resistive applications.

When using these high-performance fire Resistive glazing products, with make-ups of two to four layers of tempered glass, multiple layers of SRIIL, plus an insulated exterior glazing layer for solar control, some distortion should be expected. When you realize that the prime purpose of the glazing is to resist an 1800°F fire, remain fully in place, stop all smoke and fire during that time, reduce dangerous radiant heat (that can start fires from fifteen feet away) to safe levels, and then stand up to the full force of a fire hose without allowing the glazing to leave the opening or allowing water to get through, you can understand how technical this type of glass is.

Distortion in fire Resistive glazing comes from many sources. The tempering, laminating, or the insulating of this highly technical glazing or particularly when filling the cavity or cavities with the clear SRIIL. Therefore, the visual clarity of this type of thick, multilayered specialty glazing cannot be evaluated using the same criteria as standard annealed, tempered or insulated glass. Its make-up, manufacturing process and most importantly, its life safety function, cannot be more different. SAFTI *FIRST* prides itself in providing the highest quality products and gives special attention to the unique challenges in the manufacturing of this high-performance product.

SAFTI *FIRST* offers pressure glazed and insulated systems, and systems not available from any other fire Resistive glazing manufacturer. Systems that deliver vision, transparency, and fire safety with the greatest energy saving selection available. SAFTI *FIRST* provides daylight, solar control, fire protection, vision, and openness in place of a solid wall. A fact appreciated by architects and owners alike.

SAFTI *FIRST* continues to invest in R&D, new technology, and advanced equipment with an aim to produce everything in-house for greater quality control. Installing two new GLASTON tempering lines. Adding a new LENHARDT TPS (THERMO-PLASTIC-SPACER) line to its existing TPS line. Adding a new PUJOL laminating line to complement our fire glass products for bullet, bomb blast, hurricane, and floors. Our production teams perform multiple quality checks during each step of the production

process and prior to the products leaving our facility. Having all of these facilities in one location and the ability to control all aspects of the glass, framing, and door manufacturing process, for projects that use these specialty fire rated products, allows us the advantage of maintaining the highest quality and on-time production. SAFTI *FIRST* is the largest and only vertically integrated fire rated systems manufacturing company in the U.S.A., making glazing, framing, and doors. We are constantly improving our processes and our R&D department continues to develop new and exciting products. Check out our new, patent-pending SuperClear 45-HS-LI!

Thank You!

SAFTI *FIRST* MANAGEMENT

Please give us a call at 888.653.3333 or send us an email at info@safti.com so we may assist you with any use or design you wish to incorporate in your next project. For more information on fire rated glass, please visit www.safti.com/articles.

Below are links to other industry articles and resources for more information:

- [Methods of Measuring Optical Distortion in Heat Treated Flat Architectural Glass](#), Glass Association of North America
- [Glass Guide: Distortion](#), Western Window Systems
- [Distortion in Glass Products](#), Cardinal IG
- [Roller Wave Distortion](#), Guardian Glass
- [Heat Treatment](#), Viracon