

SAFTIFIRST Fire Resistive Glass Quality and Construction Information

Demand for code-approved glazing for fire rated applications has created a new generation of technologically advanced, high-performance glazing products. They must be strong, energy efficient and protect occupants and property from the ravages of a fire. These special fire rated solid wall replacements can also incorporate energy performance, bomb blast, hurricane, and ballistic capabilities, while providing natural light and views.

Our pioneering and educational efforts are why the building codes now allow the use of these specialty glazing products in areas where only a solid Resistive wall was required before - such as lot lines, exits, staircases, occupancy separations, and in any other higher rated areas, where fire safety and visibility are desired.

This new fire resistive glazing technology was developed in Europe but never before tested to U.S. standards ASTM E-119/UL 263 and Canadian CAN-ULC S101 (a more stringent U.S. and Canadian test requirement for applications which are to be used in areas needing a rating over 45 minutes), a test required in all areas with higher ratings, sixty (60) minute, ninety (90) minute and one hundred twenty (120) minutes. In 1981, SAFTIFIRST was the first to introduce this type of Resistive glazing product to the U.S. market. The first to test, by INTERTEK (ITS) AND UNDERWRITERS LABORATORIES (U.L.), and the first to market and sell a listed and labeled fire Resistive glazing product, rated as a fire wall, with ratings up to 2 hours. SAFTIFIRST, in 1986, was the first and only company to independently develop, produce and successfully test and patent a U.S. made Resistive glazing and framing product. SAFTIFIRST is still today the only fully integrated U.S. manufacturer of rated glazing and framing systems.

SAFTIFIRST Resistive glazing products meet and exceed these more stringent U.S. testing requirements, allowing architects and owners to enjoy the benefits of these highly advanced Resistive glazing products. It is a glazing product that requires multiple precise, complex and controlled manufacturing processes. The use and specification of these highly technical Resistive glazing products are still new to many architects and glazing professionals and they are therefore unfamiliar with their construction and visual characteristics. Even with the best practices and meticulous attention to quality control, the inherent nature of these multilayered combinations, of highly tempered glass and fire resistant interlayers, can lead to "optical irregularities". These do not affect the overall view or fire rated performance of the product. These occur as small bubbles or particulates, distortion; or lines that may occur mainly near the periphery. These are considered acceptable for this specialty glazing.

Multiple layers of fully tempered glass in this type of glazing can create additional distortion. They, however, improve resistance to thermal stress and provides the highest safety rating required by CPSC, making it an easier and safer product for occupants and installers, decreasing the chances of impact breakage. Some applications of these Resistive products are constructed with up to five separate lites of fully tempered glass. These multiple tempered glass lites provide the spacing for the multiple chambers of clear fire Resistive Semi-Rigid-Intumescent-Layers (SRIL), which can be up to four as determined by the rating (60, 90, or 120 minutes). These tested products and their methods of construction are routinely inspected by independent laboratories, UL or ITS, for conformance to the tested product for their rating, configuration, construction and labeling.

No industry standards have been developed or exist for evaluating the optical characteristics of these advanced multilayer fire rated glazing products. SAFTIFIRST's production team performs multiple quality checks during production to minimize optical irregularities, but they cannot be fully eliminated in this thick, multilayered specialty glazing. The visual clarity cannot be evaluated by the glass industry criteria for standard annealed, tempered, insulated glass or laminated glass. Its construction, manufacturing process and most importantly, its life safety function, is totally unique and different.

Resistive products are treated by the codes as a *wall*, and they must meet Resistive wall standards blocking fire, smoke and limit dangerous radiant heat. At first glance Resistive glazing may look like any other window or storefront glazing, but these fire Resistive glazing products must test and perform the same function as a solid gypsum, masonry or rated walls, used where 1- or 2-hour fire Resistive applications are mandated.

Using these high-performance fire Resistive glazing products, with two to four layers of tempered glass, multiple layers of SRIL, often with an insulated exterior glazing layer for solar control with reflective characteristics, some optical irregularities can occur. The prime purpose of this type of glazing is to resist an 1800°F fire and remain fully in place while stopping smoke, fire, and radiant heat and then resist the full force of a high-pressure fire hose blast without allowing any opening. SAFTIFIRST hopes this helps to understand what a technical accomplishment this type of glass is.

SAFTIFIRST offers pressure glazed and insulated systems, and systems and sizes not available from any other fire Resistive glazing manufacturer. Systems that deliver, vision, transparency, bullet, bomb blast, hurricane, decorative, energy saving and almost any combination of all of these with fire safety protection. This provides openness in place of a solid wall appreciated by architects and owners alike.

SAFTIFIRST continues to add related products and production of all its products in one location, with the ability to control the glass, framing, and door manufacturing, allows SAFTIFIRST the advantage of maintaining the highest quality and on-time production available. SAFTIFIRST endeavors to provide the highest quality products while giving special attention to the unique challenges in the manufacturing of these high-performance rated products.

SAFTIFIRST invests in R&D, testing and production equipment for new products. Some examples of this investment are SAFTIFIRST's recently acquired production equipment that includes two new GLASTON tempering lines, a new LENHARDT TPS line and a recently added complete PUJOL laminating line to provide bullet, bomb blast, hurricane glazing, floors and any other laminated products desired by the architectural or glass industry.

SAFTIFIRST prides itself in being the leader and only vertically integrated fire rated system manufacturing company in the U.S.A and we constantly strive to maintain being the *FIRST* through our research and development of new products. A prime example is our new, patent-pending [SuperClear 45-HS-LI](#)!

Thank You!

SAFTIFIRST

Please give us a call at (1) 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

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