

SAFTIFIRST Fire Resistive Glass Quality and Construction Information

Demand for glazing allowed by code to be used 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 occupants and property from the ravages of a fire. These special fire rated products can also incorporate their fire performance with energy performance, bomb blast, hurricane, ballistic, etc. capabilities. All these features while providing natural light and views in the place of a solid wall.

This new technology advancement was brought about by fire rated specialty Resistive glazing products developed in Europe that had never before been tested to U.S. standard ASTM E-119/UL 263 and Canadian CAN-ULC S101 (a more stringent U.S. test required for applications which are to be used in areas needing a rating over 45 minutes), a test required for all products that are to be used in areas rated over 45 minutes and up to 2 hours. In 1981, SAFTIFIRST was the first to find and bring this type of Resistive glazing product to the U.S. market. And the first to test, by INTERTEK AND UNDERWRITERS LABORATORIES (U.L.), bring to market and sell a listed and labeled fire Resistive glazing product, rated as a fire wall, with ratings up to 2 hours. And in 1986, SAFTIFIRST was the first, and only company, to independently develop and successfully test a patented U.S. made Resistive glazing and framing product, and SAFTIFIRST is still today the only fully integrated U.S. manufacturer.

Our pioneering and educational efforts are the reason why the building codes now allow the use of these specialty glazing products in areas requiring fire Resistive materials (for use in all areas needing a rating over 45 minutes) in place of a solid wall such as lot lines, exits, staircases, occupancy separations, and in any other location where visibility is desired in these higher rated areas. SAFTIFIRST's 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 and different Resistive glazing products. Resistive glazing can incorporate all the options earlier described. It is a glazing that requires multiple precise, complex and controlled manufacturing processes to make. These highly technical Resistive glazing products, while introduced by SAFTIFIRST in 1980, are still new to many architects and glazing professionals and therefore they are unfamiliar with their construction and visual characteristics.

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 the overall view or fire rated performance of the product. These "irregularities" generally occur as small bubbles, shiners that appear as reflective areas around the perimeter, particulate, or distortion which are

considered acceptable for this specialty glazing. SAFTI *FIRST* prides itself in providing the highest quality, visually clear products and gives special attention to the unique challenges in the manufacturing of this high-performance product. No industry standards have been developed for evaluating these optical “irregularities” in these advanced fire rated glazing products. Our production teams perform multiple quality checks during each step of the production process to minimize them.

SAFTI*FIRST* continues to add products to our fire rated line. Having all these products created by plants, in one location, with the ability to control the glass, framing, and door manufacturing allows SAFTI*FIRST* the advantage of maintaining the highest quality and on-time production.

In some applications, these Resistive products are constructed with up to five separate lites of fully tempered glass. These multiple tempered glass lites provide spacing for the multiple chambers (up to four depending on the rating, 60, 90, 120 minutes or the maximum rating desired) of clear fire Resistive SRIL (SEMI-RIGID-INTUMESCENT-LAYER). These tested products and their construction are routinely inspected by independent laboratories for conformance to the tested glazing’s rating and configuration and that they are properly constructed and labeled for their use.

Resistive products are treated as a *wall*, whether glazing or cement block by the codes, as they are required to not only block fire but stop smoke and limit dangerous radiant heat that can allow the fire to spread. Resistive glazing may at first glance 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 or masonry wall, used where any 1- and 2-hour fire Resistive application is mandated.

Use of multiple layers of fully tempered glass in this type of glazing can create additional distortion. However, it improves resistance to thermal stress and provides the highest safety rating required by CPSC, making it an easier and safer product for occupants and installers and decreases the chances of breakage.

As you can see, using these high-performance fire Resistive glazing products, with make-ups of two to four layers of tempered glass, multiple layers of SRIL, plus an insulated exterior glazing layer for solar control with reflective characteristics, some distortion and optical irregularities should be expected. And fully understand that 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 (that can start fires from fifteen feet away), be subjected to all of this plus the full force of a high-

pressure fire hose without allowing an opening that flames or the hose stream blast that can pass through, what a technical accomplishment this type of glass is.

Therefore, the visual clarity of this type of thick, multilayered specialty glazing cannot be evaluated using the glass industry's criteria for annealed, tempered, or insulated glass or other standard make-ups. Its construction, manufacturing process and most importantly, its life safety function, cannot be more different.

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

SAFTIFIRST continues to invest in R&D, testing, the advancement of new or improved products and new technology, along with advancement of production equipment. This is driven by our continuing aim to produce the highest quality and with everything in-house for greatest quality control. Recently acquired production equipment includes two new GLASTON tempering lines, a new LENHARDT TPS (THERMO-PLASTIC-SPACER) line added to its existing TPS line, a complete PUJOL laminating line. The latter to provide bullet, bomb blast, hurricane, and floors or any other laminated product desired by the architectural or glass industry. This capacity will complement our fire glass products with the ability to add any laminated combination desired.

SAFTIFIRST prides itself in being the largest and only vertically integrated fire rated systems manufacturing company in the U.S.A. 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!

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