

INVISIBLE WALL FIRE-RATED GLASS

By Barbara Horwitz-Bennett, contributing writer

Fire-rated glass is an elegant alternative to sprinkler systems or masonry and gypsum in school doors, lobbies and hallways. It allows natural light to filter into spaces, creating open sunny environments that also allow for safety and supervision in schools.

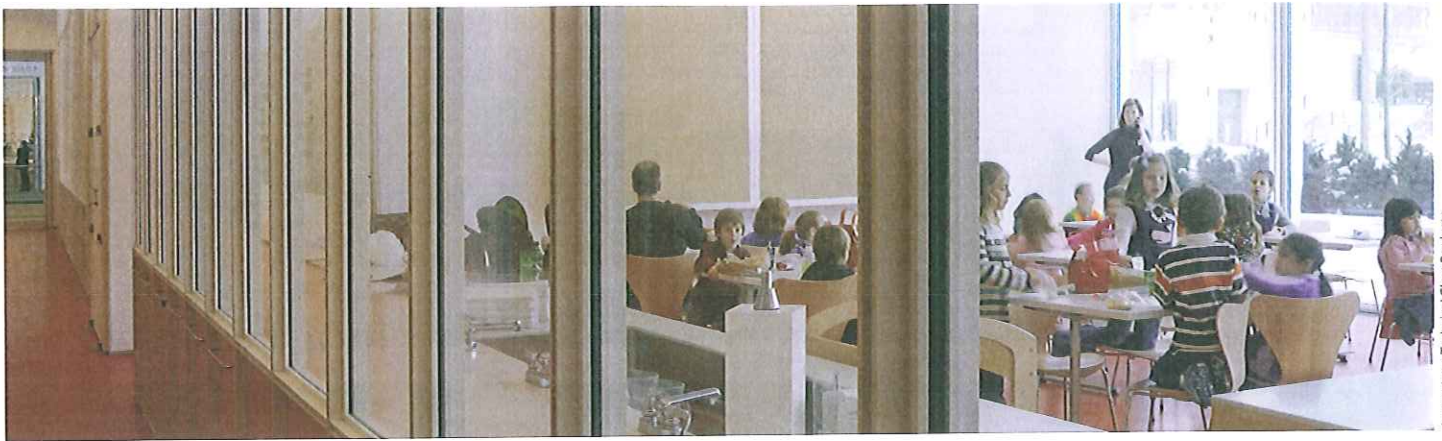




PHOTO: SAFTI



REECE SCHOOL OF NEW YORK CITY

For enhanced security, better visibility and transparency, Safti's SuperLite II-XL 120 fire-rated glass was used to create an open stairwell at the Reece School in New York City.



PRODUCT PICKS

According to Razwick, Pyrostop can even be specified in floor-to-ceiling spans and will prevent the transfer of radiant and conductive heat. Further expanding the architectural palette of design options, TGP's Fireframes ClearFloor product is a glass non-slip walking surface that's impact-resistant and fire-rated for up to two hours. Fine-tuning the aesthetics, TGP also offers FireLite ceramic glass with ultraHD technology. With an improved manufacturing process, this creates clearer surfaces with fire ratings of up to three hours.

Similarly, Schott's Pyran Platinum fire-rated glass, ceramic utilizes a micro-float process for better surface quality and color. "Traditional glass ceramics that are manufactured using the roll method typically have a very amber or brown appearance," explains Daniel Poling, sales manager, fire-rated glass, Schott North America, Elmsford, N.Y. "Due to the float process, this product has a very light blue-grey appearance that offers a truer color rendition."

In addition, Pyran Platinum provides a high sound transmission class (STC) rating for improved acoustics—a most desirable feature for K-12 settings.

Yet another popular industry product is Safti's SuperLite series for windows, sidelites and door openings, available in a variety of ratings, with fire protection and fire resistance.

While this glass is commonly used for many different applications, San Diego sees stairwell glazing gaining popularity. "To add vision, transparency and light into the space, SuperLite II-XL is a great product to use because it is a clear, impact-safety rated, fire-resistive glazing product that meets the required ASTM E-119 standard," she says.

With regards to upgrading traditional wired glass to aesthetic ceramics, SaftiField Filming enables lower cost retrofits to help schools meet impact safety requirements.

FREED UP THE CASH

While fire-rated glass products offer lots of great features, a greater first cost is involved, so school districts do need to be convinced that the long-term benefits are worth their while.

"We make a special effort to help school decision makers understand what life safety and performance benefits they're purchasing," says Razwick. "The typical school is designed to last 30 years or more, providing a lengthy time to amortize the costs of critical life-safety products. Also, specifying a low-cost option upfront may result in costly damage from accidents, injuries or repairs down the road, not to mention liability concerns."

Specifiers also can use a couple tricks of the trade to keep costs down. For example, San Diego points out that it's permissible to use 45-minute, fire-rated glazing in one-hour smoke barriers or fire partitions as long as the glazing area is limited to 25% of the total wall area. Consequently, by specifying a 45-minute product in place of 60-minute glazing, cost can be reduced. (continued page 32)

K12 SCHOOLS ARE WORKING HARD TO PUMP NATURAL LIGHT INTO BUILDING INTERIORS FOR ENHANCED STUDENT PERFORMANCE.

BELOW: THE NATIONAL CENTER FOR INTERNATIONAL SCHOOLS IN SAN FRANCISCO

The National Center for International Schools in San Francisco upgraded its traditional wired glass to clear, fire-safety glazing with radiant heat resistance and impact safety. This exit corridor is protected by a SuperLite I 20-minute door and SuperLite I-XL 45-minute sidelite glass meeting Consumer Products Safety Commission Category II, the highest federal impact safety standard.

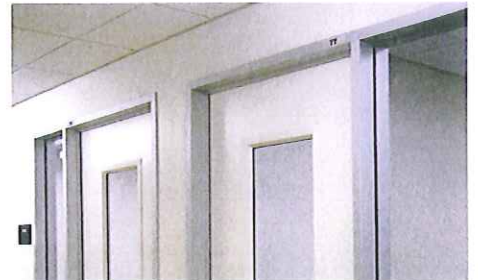


PHOTO: SAFTI



FREEDOM HIGH SCHOOL, BETHLEHEM PA.

To maximize natural light penetration from a large skylight crowning Freedom High School in Bethlehem, Pa., specifiers chose Safti's SuperLite-XL 120 because it enables the interior courtyard wall to meet its required two-hour rating, while bringing in daylight to the classrooms and adjacent areas.



Its product a relatively stable building component in a market with crucial life-safety needs, the fire-rated glass industry appears to be placing a special focus on K-12 schools, offering tools, resources and support to this market niche.

For example, Technical Glass Products compiled a handbook for specifying fire-rated glass in schools (www.fireglass.com/glass/School-Handbook.pdf), while Safti First created an entire portal (www.safteglass-forschools.com) where designers can keep abreast of the latest news, code updates, product options and design tips.

"We're very focused on working with school design professionals to understand the latest code requirements and how new fire-rated glazing can help them solve a wide range of design issues, including aesthetics, daylighting and energy efficiency," relates Jeff Razwick, vice president of business development, Technical Glass Products, Snoqualmie, Wash.

Although the educational market isn't exactly booming, studies show that approximately 76% of the nation's 100,000 plus schools are in need of repair, renovation or modernization. Consequently, the fire-rated glass market is actively engaging with this market.

LIGHT APPEAL

With daylighting design as popular as ever, K-12 schools are working hard to pump natural light into building interiors for both better energy efficiency and enhanced student performance and comfort. As such, designers are looking to fire-rated glass to break away from traditional opaque fire-rated materials.

"Advances in fire-rated glass have resulted in a new realm of open, spacious educational facilities, which are better suited for the comfort and learning needs of students," confirms Razwick.

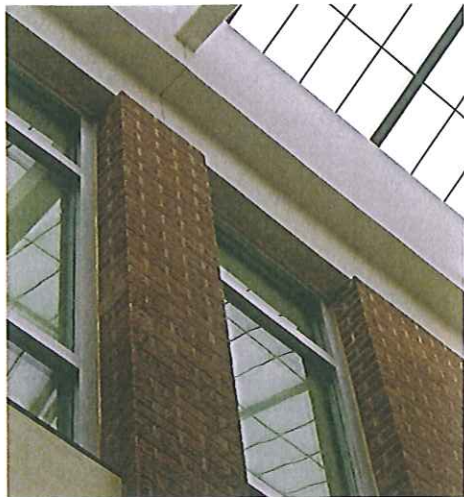
Furthermore, because school buildings are typically large facilities with many rooms, glass openings are particularly key to bringing in natural light to spaces that would otherwise remain boxed in.

"By applying fire-rated glazing instead of opaque masonry or gypsum in walls, doors, lobbies, interior courtyards, roofs and exit corridors, interior spaces can pull in light from adjacent spaces," says Diana San Diego, director of marketing at Safti First in San Francisco. In addition, increased visibility equals enhanced security—something the K-12 market is most interested in.

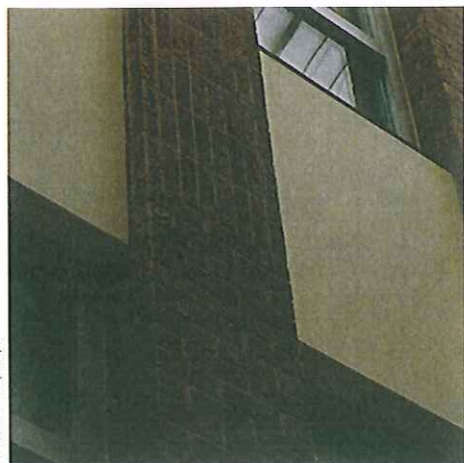
For example, for the recent design of Jones High School in Jones, Okla., the gymnasium had to be separated from the rest of the building by a two-hour-rated firewall due to area limitations.

"However, it was very important to the school that the staff be able to see between the two rooms for monitoring of student and visitor activities," explains Steven Sprague, AIA, a project manager with Oklahoma City-based LWPB Architecture, which designed the school. "The school also liked the fact that, with the glass, there would be visibility to gymnasium activities for the patrons and staff at the concession stand."

While sprinkler coverage would have theoretically been another way to meet code, the school wasn't interested in the potential damage to the wooden floor in the event of a mishap. So to create the desired transparency and be code compliant, the architects specified 120-minute fire-rated Pilkington Pyrostop glass for two big windows and six



DESIGNERS ARE LOOKING TO FIRE-RATED GLASS TO BREAK AWAY FROM TRADITIONAL OPAQUE FIRE-RATED MATERIALS



BY APPLYING FIRE-RATED GLAZING INSTEAD OF MASONRY OR GYPSUM WALLS, INTERIOR SPACES CAN PULL LIGHT FROM ADJACENT SPACES

Photo courtesy: Safti

LEFT: THE ART INSTITUTE OF CHICAGO



This custom fabricated fire-rated glass and framing application for the educational classrooms at the Art Institute of Chicago's new Modern Wing utilizes Pilkington Pyrostop transparent wall panels and Technical Glass Product's Fireframes Aluminum series for crisp edges and narrow sightlines. The products were fire tested together.

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Another strategy LWPB used for Jones High School was to issue the fire-rated glass assemblies in the bid documents as "add alternates" so that the owner could choose to not accept the bids if they came in higher than funds available. "If the bids had come in too high, there simply would not have been windows or sidelights between the gymnasium and commons area," explains Sprague. Fortunately, in this case, a competitive bid environment yielded an affordable bid.

Poling also emphasizes the costs of substituting materials to prove the case for fire-rated materials: "It is all too common to see sprinkler systems and water curtains used in place of fire-rated glazing, but we must keep in mind that these systems will be a constant cost for cash-strapped

institutions, requiring maintenance and regular inspection."

In addition, Safti's Director of Business Development Jeff Griffiths points out that sprinkler systems are not fool-proof, as evidenced by noted sprinkler product recalls and reported events of failed operation.

MAKING THE RIGHT CHOICE

But whatever the case may be as far as active or passive fire-protection schemes, if specifiers go the passive route with fire-rated glazing, they need to be informed as it can be rather complicated to find the right product for a given application.

With varying code requirements, product offerings and quite a range in cost, it's safe a bet to say school districts require guidance in this realm. For instance, according to Dennis L. Hacker, AIA, specification writer/manager at Fanning Howey, Toledo, Ohio, fire-rated glazing options include laminated ceramic glazing material, specially tempered glass, special laminated glass, laminated glass with intumescent interlayers, and gel-filled, dual- and triple-glazed units.

"Furthermore, some of these products must be used with special framing systems to meet fire test and performance requirements," he points out.


Consequently, designers and fire-rated glazing manufacturers play a valuable role in selecting optimal products to meet the school's fire protection, aesthetic and budgetary needs. 



PHOTO: SAFTI

IF SPECIFIERS GO THE PASSIVE FIRE PROTECTION ROUTE AND EMPLOY FIRE-RATED GLAZING, THEY NEED TO BE INFORMED AS THE PROCESS CAN BE COMPLICATED

THE UNIVERSITY OF CAL-DAVIS

Fire-rated glass helped transform the atrium of the Surgery and Emergency Services Pavilion at the Medical Center of the University of California-Davis into a light-filled environment.



ABOVE: NORTH LAYTON JUNIOR HIGH SCHOOL IN SALT LAKE CITY, UTAH

By specifying SuperLite II-XL 120 glass at North Layton Junior High School in Salt Lake City, Utah, designers were able to borrow light from the library for the exit corridor for a safer path of egress. 