

Take the Stairs: GSA Takes the Lead in Reinventing Stairways That Promote Better Health and Productivity

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Just two minutes of stair climbing a day can prevent the pound of weight that the average American adult gains each year. However, simply know this or seeing a sign asking occupants to take the stairs is generally not enough to make someone take the stairs – but centrally located, spacious, appealing staircases will encourage use. There’s a “movement” underway to transform dark, hidden stairwells into prominent, spacious, inviting staircases filled with natural light. The stairway renaissance not only provides health benefits, but saves energy, provides vertical flexibility and connectivity, and improves workplace efficiency and overall occupant safety.

Active design seeks to convert stairwells “originally conceived as rarely-to-be-used contingencies...bare and unappealing, the doorways solid and downplayed” into well-designed stairways with transparent, fire resistive glass walls that let in daylight, carry corporate branding and provide safe egress for building occupants to use in an emergency. Today’s fire rated glazing and framing products offer building materials that support design efforts to make stairs more visible, appealing and safe.



SuperLite II-XL 60 with Decorative Art Glass in Stainless Steel GPX Framing work together to make this 1-hour stairwell visually appealing and inviting. Architect: RRTL. Glazier: InterClad. Project: St. Cloud University ISELF Building in St. Cloud, MN.

Active Design Requirements and Benefits

When the active design movement started in 1990s, it was two-fold. First, the Center for Disease Control and the Robert Wood Johnson Foundation sponsored studies linking inactivity to obesity and illness. Second, increased awareness in the building community in designing buildings that conserve energy and promote collaboration, workplace efficiencies, community and safety. Recent progress in making stairways prominent has been spurred by policies adopted by the U.S. General Services Administration (GSA) and Mayor Bloomberg, as well as publicized active design projects created by leading architects.

Energy Conservation. Starting in 2006, the U.S. General Services Administration (GSA) adopted a policy to promote stair use in all 8,600 federal buildings. The GSA’s Architectural and Interior Design Standards (2003) require: “The location of stairs within buildings should encourage their use in lieu of elevators to the fullest extent possible. This will reinforce the recognition of sustainable energy conservation.”

Commercial buildings account for 35% of total U.S. electricity consumption, and elevators use 10% of a building’s energy. Cutting elevator use saves electricity and money. Projects seeking LEED credits can obtain an Innovation in Design credit for promoting routine stair use which promotes indoor physical activity, and other LEED credits for energy savings.



SuperLite II-XL 120 in GPX Framing is used on all 14-floors of the LEED Platinum-certified San Francisco Public Utilities Commission Building. This transparent 2-hour stairwell help bring daylight deeper into the building. Architect: KMD. Glazier: Progress Glass.

Health by Design. In 2013, New York City’s Mayor Bloomberg issued an Executive Order to require all city agencies to use active design strategies in all new construction and renovation projects in order to get people moving. The Active Design Guidelines published in 2010 include a requirement to “focus on stairs rather than elevators as the principal means of vertical travel for those who are able to climb the stairs.” In high-rise buildings, the Active Design checklist requires an integrated vertical circulation system that incorporates stair use between adjacent floors.

Dr. Karen Lee, a New York City official who helped develop the Active Design Guidelines cited the rapidly rising rates of obesity and chronic illnesses directly linked to inactivity and poor diet as urgent reasons for rethinking aspects of the built environment. Stair climbing burns more calories than jogging. A study of 10,000 men showed that climbing 20-34 stairs a week (or 3-5 flights a day) reduces the risk of stroke by 29%. “When staircases with innovative design features are placed more prominently within a building, stair use goes up 72%,” said Dr. Lee.

David Burney, commissioner of New York City’s Department of Design and Construction, says that for decade’s architects and planners have made it easy for people to be sedentary, and that active design principles ask “design professionals to be part of the solution and find new ways to encourage movement.”

Vertical Flexibility and Connectivity. Gensler’s Bob Peck, who also served as the head GSA’s Public Building Service, sees other benefits of internal stairways. “We workplace strategists and designers have learned how to create office layouts that optimize space utilization, flexibility and efficiency,” wrote Peck. “But, we’re still vertically challenged: we haven’t solved flexibility and connectivity in the critical vertical dimension...How can we overcome this vertical challenge? Of course, the answer is ‘stairways.’ But not stairs as we currently design them.” Peck goes on to discuss how the use of open stairways can increase visibility and transparency between floors in ways elevators cannot. “Chance encounters

happen. Communication and ideas flow.” Peck should know. He oversaw the conversion of the GSA’s 1917 headquarters building in Washington D.C. An internal stairway tied together two floors of top level managers into one.

Workplace Efficiency. Walking up or down stairs is faster than taking the elevator, without even accounting for elevator waits or distance to the elevator or stairway. To ascend one level via an elevator takes 36 seconds and to ascend one level via the stairs takes almost a third less time, 13 seconds. Studies show that this efficiency is especially vital in hospitals where health care workers, like respiratory therapists and pharmacy techs, can better serve patients using the stairs between physical units lying on top of each other.

Occupant Safety. Better designed stairways with wider steps, natural light and openness to building interiors are safer. When the Architectural Team in Boston redeveloped the 1939 Homes at Old Colony, a public housing project, they removed dark isolated stairways and replaced them with stairways filled with natural daylight that opened to lobbies. The result is that residents are safer and more connected to the community. And, by adding additional, spacious, accessible stairways leading to exits and built to code using fire rated glass and framing, you improve emergency exit safety in the event of a fire.



SuperLite II-XL 120 in GPX Framing add daylight and transparency to this 2-hour stairwell. Architect: MHTN Architects. Glazier: Mollerup Glass. Project: David Eccles School of Business at the University of UT in Salt Lake City, UT.

Fire Rated Glass and Framing Help Make Stairs More Prominent

For new construction and major renovation projects, prominent stairways can be integrated seamlessly from the start. But, what about existing buildings? How can stair use be promoted at minimal cost while meeting building and fire safety codes?

New York City’s Active Design Guidelines note: “that most building codes look at stairs as part of an emergency access and exit system. But they also point out that buildings that better incorporate everyday stair use may actually improve occupant safety in emergencies by making the stairs more accessible, better lit, and wider. Furthermore, whereas code-mandated fire separations are traditionally met through the use of masonry or gypsum board with solid metal doors, the guidelines note that exit stairs can be made more visible and appealing by using fire- rated glass enclosures.”

Bob Peck points out that there is an economical way to transform existing fire stairwells into attractive, inviting stairways favored by active design. He suggests that “fire doors can be appealing, with glass panels, glass sidelights and signage. The stairwells themselves could have fire rated windows to let in daylight and could carry corporate branding. The doors could even be on ‘hold-open’ devices that would automatically close them in the event of a fire.



For this 2-hour stairwell, SuperLite II-XL 90 is used to exceed 100 sq. in. in the door vision panels while SuperLite II-XL 120 in Stainless Steel GPX Framing is used for the sidelites and transoms. Architect: KPF. Glazier: RG Creation. Project: CUNY School of Law in Long Island City, NY.

“The use of glass to pay design attention to fire stairwells and doors will add some cost to construction, but not nearly as much as slab-cut internal stairs. Fire stairs are not the only solution. In some older buildings, an existing light well or atrium could accommodate an internal stair without requiring slab cuts.”

The New York City office of Perkins + Will recently opened a 700,000 sf police academy headquarters in Queens, New York. Described as a “skyscraper on its side,” the “building is designed for stairs to be the primary means for people to be moving anywhere,” said project architect Joan Blumenfeld, who also served as president of the New York chapter of AIA and worked with the Bloomberg administration on the Active Design Guidelines. Blumenfeld pointed out that New York City’s new construction codes permit buildings to use fire rated glass doors and smoke-activated automatic closing devices, which allows as many stairwells as possible to be visible and more inviting to building occupants.

Conclusion

Active design principles and projects are taking root in federal buildings and some areas of the country like New York City. This trend is not yet at a scale needed to give everyone access to buildings that promote stair use for energy conservation, health benefits, workplace connectivity, efficiency and improved safety. But, fire rated glass and framing is available to ease the transition by making stairway open and appealing cost effectively.

For more information on SAFTIFIRST’s comprehensive line of fire rated glass and framing products, visit www.safti.com or call 888.653.3333.

References:

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