

Fire Rated Glazing in Healthcare Occupancies

In hospitals, urgent care, long-term care and other healthcare facilities, immobile patients make complete evacuation in the case of a fire difficult or impossible. For this reason, containing fire through built-in or passive fire protection in tandem with active fire protection measures is crucial in health care occupancies. In addition, research shows that adding natural light in healthcare interiors leads to healthier outcomes. Today's clear fire rated glazing products play a key role in providing patients both fire safety and light in new and renovated healthcare facilities.

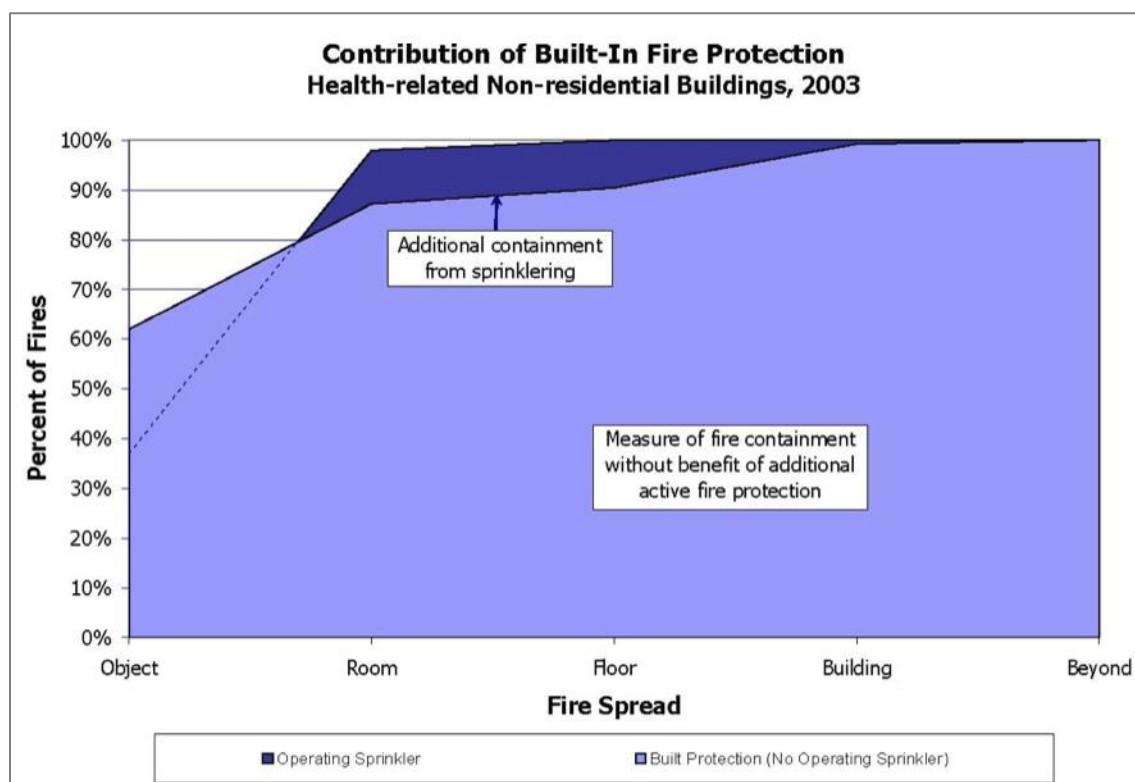
Glazing adds natural light, improves patient health and reduces energy use

Clear glazing in healthcare occupancies is healthy for patients and workers. In 2006, The Center for Health Design published a report finding that By controlling the body's circadian system, light impacts outcomes in healthcare settings by reducing depression among patients, decreasing length of stay in hospitals, improving sleep and circadian rhythm, lessening agitation among dementia patients, easing pain, and improving adjustment to night-shift work among staff. The study concluded that adequate and appropriate exposure to light is critical for health and well-being of patients and staff in healthcare settings. Natural light is not only healthy; it's green because it reduces the need for artificial light and energy use.

Built-in or passive fire protection plays a major role in total building fire protection

Total building fire protection for life safety is more necessary in healthcare occupancies than other occupancies, because of the nature of the occupants, says NFPA Technical Committee member Daniel O'Connor.

System Planning Corporation evaluated data from the National Fire Incident Reporting System to determine the relative role of built-in or passive protection, which refers to the use of fire resistance construction in doors, openings and walls to prevent or slow the spread of fire from the room of fire origin to other building spaces. By limiting the spread of fire with fire resistance materials, damage to the building is reduced and building occupants gain time for emergency evacuation or movement to areas of refuge. The report found that built-in fire protection limited fire spread to the room of origin in 90% of health-related buildings. Active fire suppression systems, such as sprinklers, and speedy fire department response provided the other 10%, meaning that built-in or passive fire protection does the majority of the work.



Fire rated glazing provides built-in fire protection 24 hours a day, 7 days a week

Starting in 1994, NFPA 101 required automatic sprinkler systems in new and renovated healthcare facilities, including quick response sprinklers in patient sleeping areas. While the sprinkler requirement does improve safety, sprinklers can and do fail. Richard Licht of the Alliance for Fire and Smoke Containment and Control writes that over the past 30 years, the three national model building codes

have called for increased use of sprinklers while rolling back requirements for fire-resistant components. Sprinkler systems can and do fail because of human error, neglect and mechanical malfunction. Occupants in a building not equipped with the protection of fire resistant construction are subject to substantially increased danger when a sprinkler failure occurs.

FM Global has [created a video](#) that lays out some of the reasons that sprinklers fail and why sprinklered buildings burn.



In 2010, the National Fire Protection Association (NFPA), an enthusiastic sprinkler system advocate, published a report called U.S. Experience with Sprinklers and Other Automatic Fire Extinguishing Equipment. NFPA research found that when sprinklers are present in the fire area, they operate in only 93% of all reported structure fires. According to the NFPA, when sprinklers fail to operate, the reason most often given (53% of the failures) was shutoff of the system before the fire started, which may occur in the course of routine inspection and maintenance. Other leading reasons for sprinkler

failure include: an inappropriate system for the type of fire (20%); lack of maintenance (15%); and manual intervention that defeated the system (9%). Given the margin of sprinkler failure, every fire protection strategy for a healthcare facility should incorporate an alternate means of built-in or passive fire protection in order to avoid dire consequences for both patients and workers.

Fire rated glazing provides continuous passive fire protection without the need for triggers that require maintenance and are at risk of not working in an emergency. In addition, incorporating clear lines of sight through transparent walls, doors and openings is a significant benefit to first responders. It gives them an opportunity to visually assess the situation before charging in, greatly improving fire and life safety.

Using fire rated glazing to create built-in fire protection in healthcare occupancies

1-hour exit corridors 20 min. door vision panels and 45 min. sidelites, transoms and openings. If the glazed area exceeds 25% of the wall area, 60 min. fire resistive glazing must be used.

1-hour exit/stairwell enclosures 60 min. door vision panel and 60 min. sidelites, transoms and other openings. 60 min. fire protective glazing can be used in the door vision panel up to 100 sq. in. To exceed 100 sq. in. in door vision panels, 60 min. fire resistive glazing is used. 60 min. fire resistive glazing must be used in the sidelites, transoms and openings.

2-hour exit/stairwell enclosures 90 min. door vision panel and 120 min. sidelites, transoms and other openings. 90 min. fire protective glazing can be used in the door vision panel up to 100 sq. in. To exceed 100 sq. in, 90 min. fire resistive glazing is used. 120 min. fire resistive glazing must be used in the sidelites, transoms and openings.

1-hour exterior walls (when permitted per Table 705.8 in the IBC) 45 min. fire protective openings within specified limits. To exceed specified limits, 60 min. fire resistive glazing must be used.

2-hour exterior walls (when permitted per Table 705.8 in the IBC) 90. min fire protective openings within specified limits. To exceed specified limits, 120 min. fire resistive glazing must be used.

For a complete list of fire rated glazing applications, please refer to [Tables 716.3, 716.5 and 716.6 of the 2012 IBC](#). Click here to see a gallery of fire rated glazing installed in healthcare occupancies.

SAFTI FIRST also offers an AIA-registered live webinar explaining the updated 2012 Chapter 7 Tables in depth (eligible for 1 AIA LU/HSW credit.) To schedule a free webinar for your firm, please contact Diana San Diego at dianas@safti.com.