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Dana-Farber Cancer Institute challenges local fire protection codes to better protect occupants

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Nestled in the middle of Harvard University's Longwood Medical Area stands the 16-story, 440,000-s/f Dana-Farber Cancer Institute, an outpatient treatment center committed to medical discovery and patient care.

Critical to this patient dedication is their customized fire evacuation plan, developed to keep the hospital's ambulatory patients safe and calm during an emergency. Installed in the early 1990s, the building's fire alarm system employs coded sirens that notify the staff of a fire's location, allowing them to evacuate patients according to the facility's evacuation plan.

Dana-Farber was looking to increase patient safety by replacing their existing fire alarm system with one that incorporates the most advanced features available. To do this, they would be required to meet current local and national fire codes. For Dana Farber, it would mean the installation of a voice evacuation system.

Defending patient care

In an effort to create a new fire evacuation system that still appreciates the vulnerabilities of the patients and the responsibilities of the Institute's staff simultaneously, facility managers brought the fire/life safety design engineers at New York-based Syska Hennessy Group on board in the summer of 2001.

Establishing system objectives was the first order of business. The facility's primary concern was that their patients not be frightened by the new system. It was decided that the patients could best be served by a new voice alarm system that would also notify the staff to facilitate evacuation without panicking their patients. Additionally, a horizontal evacuation system, where patients near the suspected area relocate to another section of the same floor, instead of exiting the building, was crucial for the ambulatory patients. This would require the new voice system to indicate the floor and wing where the fire is located, while also limiting the number of areas receiving an evacuation signal.

Though typical of a healthcare facility, these goals would prove hard to come by for Dana-Farber. Today's new and replacement fire alarm systems must be designed and installed in accordance with current State of Mass. and local Boston codes which incorporate strobe lights and building-wide voice broadcasts warning occupants to evacuate the building. The Mass. Building Code for high-rise facilities also demands an evacuation tone or message throughout the floor of incident and those above and below it, resulting in a minimum of three floors worth of occupants being asked to evacuate. These codes provide no exception for health care occupancies.

Will to survive

With the help of independent consultant and life safety/fire protection engineer Eugene Cable, P.E., the team found an exception under the National Fire Protection Association (NFPA) 101: Life Safety

Code that permits the use of a customized fire protection system where occupants are incapable of evacuating themselves. However, additional research revealed that the more stringent local jurisdiction trumps national code exceptions.

If Dana-Farber was to defend the patient care it is so famous for, the State of Mass. would have to be challenged. The process began at the Boston Department of Inspectional Services where the team applied for another building permit, this time requesting selective alarm notification and stating all customized design concepts.

The application was promptly denied, requesting compliance with State of Mass. Fire/Life Safety Code. However, the Department of Inspectional Services invited the Dana Farber Institute to appeal.

Subsequently, the Institute filed an appeal with the State of Mass.Building Code Appeals Board. Cable, Syska Hennessy design engineers and Dana-Farber facility managers appeared before the board to explain our position. The team defended the design concepts set forth to protect the patients and the merit of the NFPA code exception for healthcare facilities.

The request was granted, pending endorsement of the Institute's fire and evacuation plan by the Boston Fire Department, which was subsequently approved.

Survival of the fittest

Although Dana-Farber faced the typical pressures that require both project completion and a secured occupancy permit on time, the five months it took for the appeals process proved rewarding.

Today the variance to the Mass. Building Code reads, "Voted that the Appellant shall have a variance from the provisions...as previous editions of the MSBC specifically incorporated the applicable provisions of NFPA 101, and also given that the evacuation plan of Dana-Farber has been regularly made known and approved by the Boston Fire Department."

Driven by patient care and safety, Dana-Farber's quest to challenge the status quo can be a great lesson to our industry. Creating an environment that truly meets the needs of its occupants, not just those of its governing edicts, will reap benefits not only for Dana-Farber, but for those who follow in its footsteps for years to come.

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