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CASE STUDY

Captain James A. Lovell Federal Health Care Center | Chicago, Illinois

Chicago VA Hospital Requires Vertically Installed Smoke Vents

The history of smoke ventilation goes back centuries. Persian windcatchers, Roman atriums, teepees and igloos are all examples of how airflow has been used to moderate environmental conditions and eliminate smoke.

In the early 1900s, buildings were often constructed with provisions for automatic smoke ventilation, but there were no set design practices or codes dictating their use. In many cases, makeshift ventilators were used and installed vertically.

The need for passive smoke and heat ventilation products was heightened by a 1953 fire at the General Motors plant in Livonia, Mich., which marked the biggest industrial fire in U.S. history. The fire was sparked by a welder's torch and resulted in the death of three employees and destroyed the auto maker's transmission factory.

At that time, fire protection codes were developed to dictate the use of these life safety products and manufacturers began to develop more sophisticated product solutions. One of the biggest changes was to install products horizontally on the roof to maximize the building's ventilation area.

Many older buildings, however, still have vertically installed vents. That was the case at the Captain James A. Lovell Federal Health Care Center, which opened in 2010 with buildings that were part of the North Chicago VA Medical Center, which was built in 1926.

Industria, a regional construction management business, faced the difficult task of replacing 14 vents and turned to BILCO for the solution.

"It just wasn't feasible to mount the smoke vents horizontally on the roof," said Carlos Vargas, Senior Project Manager for Industria. "We would have had to basically remove the roof and that was not an option. The vertical vents do not meet fire code, but the hospital worked with code officials and that was the solution they agreed upon."

The products were specifically designed for vertical installation and were equipped with all the standard features of a standard automatic smoke vent. Electric latching mechanisms were used on all ventilators for this project to allow them to be opened by the building's management/fire alarm system.



Smoke vents play an important role in helping firefighters bring a blaze under control. They protect property and aid firefighters in bringing a fire under control by removing smoke, heat, and gases from a burning building.

Smoke vents are ideally suited for large expanses of unobstructed space such as factories, warehouses, auditoriums, and retail facilities. Use of these products in modern building design is dictated by National Fire Protection Association (NFPA) and International Building Code (IBC) fire protection standards.

Smoke vent installation was just one part of the scope of work for Industria. "The stage was not used for many years," Vargas says. "The purpose of the project was to provide much needed repair work and to bring the stage back to operating condition."

The smoke vent replacement, however, was one of the more challenging tasks of the renovation. "BILCO was able to manufacture vertical vents quickly, and that helped us finish the job much more quickly," Vargas said.

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