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## CASE STUDY

McCain Auditorium at Kansas State University | Manhattan, Kansas

### Roofers Solve Several Challenges In Smoke Vent Replacement at Kansas State

On the surface, the task of replacing six smoke vents atop McCain Auditorium at Kansas State University seemed like a routine project. There were several challenges, however, that required some unique problem-solving skills for the contractors that tackled the project.

The auditorium, which was built in 1970, is the cultural hub of the campus in Manhattan, Kansas. The facility had undergone a roof replacement, but age and a severe summer hailstorm in September 2015 took their toll on the vents. The storm dropped hail more than four inches in size in some spots, and students escaped to a tornado bunker on the night of the wicked weather. The National Weather Service said 3.41 inches of rain fell in just one hour. "One hour rainfall rates of 3.41 inches are considered to be a 50-to-100 year event for Topeka," the NWS said.

Kansas City-based International Architects Atelier (AIA), the architect for the project, specified The BILCO Company to fabricate six double leaf automatic smoke vents, each 9-feet, 7-inches by 10-feet. Ray Newcomer of Commercial Manufacturer Representatives procured the vents and a team from Diamond Roofing of Manhattan was selected to install them.

The first big challenge was the height of the building. "Our crane was just tall enough to get the vents on the roof," said Breck Simonsson, project manager for Diamond Roofing.

The next obstacle was putting the automatic smoke vents in place. The vents weigh about 1,100 pounds, and Simonsson's crew used a four-wheel cart – with a capacity of 2,000 pounds – to position the heavy vents. The vents came in two pieces and workers used 2-feet by 4-feet wood pieces to steady the vents as they pulled them into place.

Next, Diamond's team needed to construct a platform to protect the grid level under the smoke vents. The auditorium has an elaborate and complex network of pulleys to move curtains, and the platform protected the cables during installation of the vents.

"Having to build the protection platform underneath the roof was quite the undertaking," Simonsson said. "I'm sure it will be something that the guys who worked on it will remember for a long time."

Smoke vents assist firefighters in bringing a fire under control by removing heat and gases from a burning building.



Workers installed six BILCO smoke vents during a project at McCain Auditorium at Kansas State University.



They are the most economical way to add fire venting protection in large single story buildings, and are ideal for auditoriums, warehouses, and manufacturing facilities. "BILCO's vents are very well made, easy to install, and perform how they are supposed to," Simonsson said.

The vents include a Thermolatch® II positive hold/release mechanism that ensures reliable vent operation when a fire occurs, and includes gas spring operators to open covers in snow and wind.

The roofers installed the vents during a two-week break between semesters in late summer. "Diamond Roofing and Kansas State University have a wonderful relationship and we always enjoy the opportunities to work on campus," Simonsson said. "For me personally, being a K-State graduate, it will be a project that I look back fondly on for many, many years."

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