CASE STUDY | AMERICAN AIRLINES - JFK

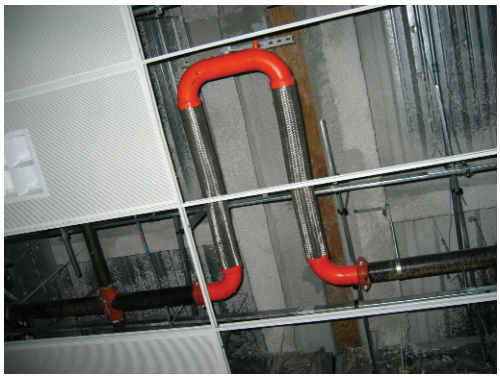
Fireloops solve seismic design challenges for fire sprinkler system in new American Airlines JFK terminal

Unique expansion loops allow simpler, tighter piping runs in New York terminal

Roof's wing design causes terminal to "take flight"

A 1,840,000 square foot behemoth that holds three complete concourses. Passenger check-in space big enough to hold Giants Stadium. A facility capable of accommodating 14 million passengers annually. Yet, the new American Airlines mega terminal at Kennedy Airport in New York pushed the envelope for designers, engineers and contractors who seemed to have less space to work with, not more.

Seeking to create clean, modern lines as well as functional space, architects challenged all disciplines to help them keep their vision. This meant squeezing utilities into as little space as possible, including a fire sprinkler system that met new seismic codes.



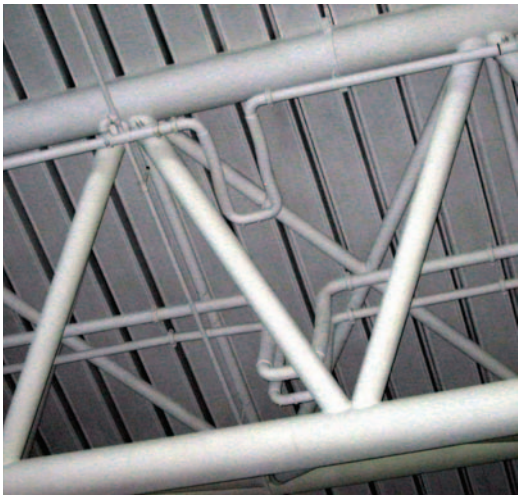
Fireloops permitted tighter piping runs and fit close to walls and ceilings.

No room for traditional seismic joints

As a rule, seismic joints are not small, and not pretty. They require a convoluted Rube-Goldberg style arrangement of connections that would allow movement in all directions. "There was just no room for all that extra hardware," explained David McMahon, Senior Project Manager, SIRINA Fire Protection Corp. "Seismic codes are a relatively new issue in our part of the country, and to use the traditional grooved coupling configuration just would not cut it. That's when we found the Fireloops. They solved all our problems."

The unique design of seismic Fireloop expansion joints makes designing fire sprinkler piping runs a lot simpler. Capable of up to ± 4 and ± 8-inches of movement in all directions, Fireloops can fit snugly up in the ceiling, in walls, and can even be "nested"

Dozens of Fireloops were installed all over American Airlines terminal in a variety of sizes and configurations.



Fireloops designed for 12-inches of movement were installed in the ceiling to allow for roofs movements of up to 5-inches upward and 1-inch downward.

within each other, making them a more elegant and efficient solution for extremely tight piping runs.

"We installed dozens of Fireloops throughout the terminal in places I know we could not have used any other type of seismic joint," comments Rocco Abbate Executive vice President, SIRINA Fire Protection Corp. "The loops (Fireloops) solved a lot of issues.

"In fact, it was the first set of Fireloops we ordered that convinced us it was the right product," he continues. "They were so easy to install in the first phase of construction we knew it was the perfect seismic joint to use for the rest of the project."

What happens when it starts to fly?

The "wing-like" architecture of the terminal even created an interesting challenge. "We had to have some special Fireloops created that would accommodate up to 12-inches of movement and installed them in the ceiling at building separations," explains Tom Field, Eastern Region Sales Manager for Reliable Automatic Sprinkler Company, from whom SIRINA purchased the Metraflex Fireloops. "We needed extra movement and flexibility there because of the expected rise and fall of the facility from wind and snow." High winds across the wing-like roofline were expected to raise the roofline up to five inches. And the snow loading could cause the roof to deflect downward as much as an inch.

Its adaptability to pipe system designs and simplicity of installation made Fireloops a desireable choice over traditional large, convoluted seismic joint configurations.

Fireloop expansion joints, developed and manufactured by Metraflex, have been used in thousands of installations in seismic applications nationwide. Their unique design provides the flexibility and freedom architects and engineers need to advance their designs. And the ease of installation and small footprint helps contractors speed through installations and meet construction deadlines and budgets.

The American Airlines terminal, which started in 1999, is a four-phase project slated for completion in 2007. The terminal will centralize ground access and passenger processing at JFK Airport. It will have 37 jet gates and 18 commuter gates, large customs and immigration halls, and a streamlined baggage system.

Visit www.fireloop.info for more information, CAD downloads, pressure drop charts and other valuable information on designing with and installing Fireloops in a host of applications. Or contact The Metraflex Company, 2323 W. Hubbard, Chicago, IL 60612; Ph: 312-738-3800; Fx: 312-738-0415; info@fireloop.com.

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