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== CASE STUDY ==

CHICAGO HILTON HOTEL TURNS TO AEROSEAL FOR AN EFFECTIVE, NON-DISRUPTIVE HVAC SYSTEM UPGRADE

Innovative Duct Sealing Technology Allows Luxury Hotel To Utilize Existing Duct System While Replacing Old Open Flow Air Handler With New VAV Equipment

In 1927, the Chicago Hilton hotel building opened its door to the public and was crowned the largest hotel in the world. Even today, it provides the largest total meeting and event space the city of Chicago has to offer. Part of that space includes Salon C, a 29,000+ ft² convention facility that recently underwent major renovation. This included upgrading its 80-year-old constant flow air handling unit to a variable air volume (VAV) system.

The renovation plan included adding new ductwork that would connect to thousands of feet of existing ductwork located in a sub-basement space just below the convention room floor. Unfortunately the old ductwork was rife with leaks, and engineers knew that it would not accommodate the added pressure created by the new VAV system. They also knew that replacing the ductwork or sealing it using traditional methods would add months to the project schedule and tens of thousands of dollars to the budget.

In Brief

Building: Hilton Chicago hotel building
Location: Chicago, Illinois
Aeroseal Contractors: Aeroseal Solutions
Contract Engineers: Grumman/Butkus Associates
Goal: Quickly renovate existing ductwork
Before Aeroseal: 12,414 CFM of total leakage
After Aeroseal: 613 CFM of total leakage
Results: A 95% reduction of leakage. 3-day project.



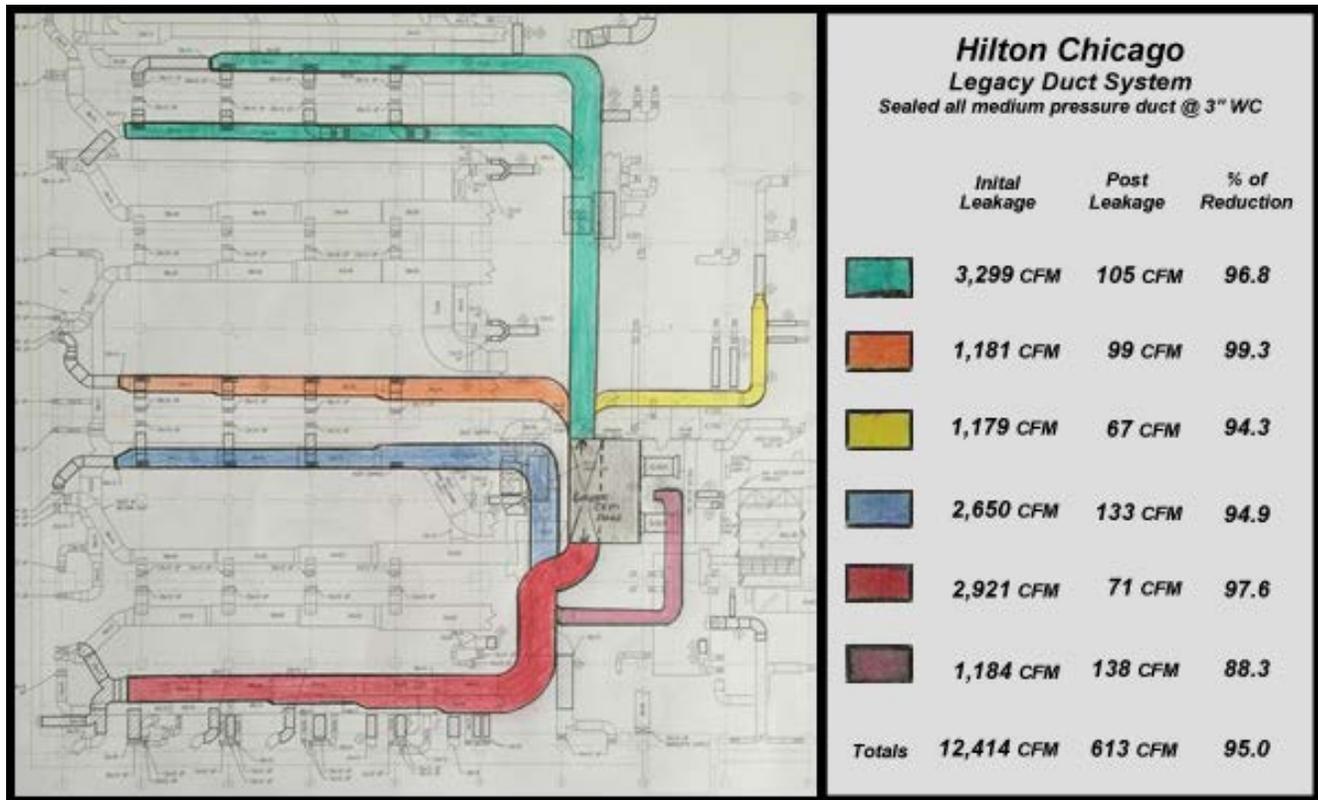
Fortunately, Grumman/Butkus, the engineering firm in charge of the renovation, was familiar with a new duct sealing technology called aeroseal, that works from the inside of the ducts to find and seal leaks. A call was placed to local duct sealing experts Aeroseal Solutions, who explained to hotel management how the aerosol-based technology could quickly and easily seal the old duct system with minimal disruption to the existing building structure or to the day-to-day operations of the hotel.

With approval to proceed, the Aeroseal team began the sealing process. The aerosol sealant was blown into the duct interior via a single entranceway cut into the air handler. Using blocking foam, the team sectioned off and sealed, one-by-one, six separate sections that made up the entire legacy duct system. It took just three days to effectively seal the entire network of underground ducts.

Watching a computer monitor during the process, engineers knew what the final report would confirm: total duct leakage was reduced by 95%, and the new VAV system was ready for operation.

“The result was pretty impressive. If this new technology didn’t exist, we would have had to rethink the entire project – perhaps replace the entire duct system. The aerosol approach not only saved the hotel an unimaginable amount of money in material and labor costs, but it averted the enormous disruption associated with having to tear out and replace the existing ductwork.”

David Shaefer
 Project Engineer
 Gruman/Butkus Associates



Aerosol – The Technology

In the aerosol process, the sealant doesn’t coat the duct interior but instead, concentrates around the leak. An aerosol-mist of sealant is blown throughout the interior of the ductwork. The microscopic particles of sealant remain suspended in air until they reach a leak. Here they cling to the edge of the hole and then to other sealant particles until the leak is completely sealed.

- Developed at Lawrence Berkeley National Laboratory in 1994.
- Research for aerosol technology was partially funded by the U.S. Department of Energy.
- Aerosol is delivered as a non-toxic aerosol mist that seeks out and plugs leaks.
- Aerosol has proven to be 95% effective at sealing air duct leaks.