

≡ CASE STUDY ≡

## PENSACOLA CHRISTIAN COLLEGE FINDS AEROSEAL IDEAL SOLUTION FOR SOLVING POOR BUILDING VENTILATION

### Innovative Approach to Duct Sealing Proves To Be The Least Intrusive / Most Cost-Effective Means Of Getting Proper Bathroom Exhaust Rates In Building Retrofit Project

In the coastal town of Pensacola, Florida, the key to fighting humidity and excessive moisture is ensuring proper building ventilation. So when administrators at Pensacola Christian College decided to renovate Campus House, the college's 3-story dormitory, they knew they needed to get proper exhaust levels from the 30 risers leading from the buildings' various bathrooms up to the attic. As it turned out, leaks in the ductwork were making it impossible for the large attic fans to draw sufficient air up through the system. After year-long efforts at manually sealing failed to do the trick, engineers considered adding auxiliary fans to each bathroom. Unfortunately, exorbitant labor costs, logistics and concern over excessive fan noise eliminated the viability of this approach as well.

That's when engineers at Premier Engineering Group suggested the use of aerosol – an innovative approach to duct sealing recently developed with funding from the U.S. Department of Energy.

#### In Brief

**Building:** Campus House; Pensacola Christian College  
**Location:** Pensacola, Florida  
**Engineers:** Premier Engineering Group LLC  
**Aerosol Contractors:** Blackwell Htg. & AC  
**Goal:** Improve ventilation / reduce duct leakage  
**Before Aerosol:** 1,252 total CFM of leakage  
**After Aerosol:** 183 total CFM of leakage  
**Results:** Leakage reduced > 85%; high ventilation



Since aerosol works from the inside of the shafts to seal, issues related to manually locating and accessing the leaks were eliminated. A test project involving one of the risers also eliminated any concern that the sealant would interfere with fire dampers or other internal structures.

Over a period of several days, aerosol technicians were able to seal all 30 risers and reduce leakage by 90% or more. Where manual sealing failed, aerosol performed quickly and effectively. Accessing the existing shafts was accomplished without the need to demolish any of the building's existing walls or other structures.

Since its initial use, aerosol technology has been recommended for additional campus renovation projects.

“We were concerned about the possible effect that the aerosol sealant might have in and around the fire dampers, where much of the leakage was determined to exist. Our initial pilot project revealed that aerosoling had virtually no negative effect on the dampers. The aerosol-based sealant sealed the leaks around the dampers but didn’t affect their functioning whatsoever. In the end, aerosol made a big difference – sealing 80% to 90% or more of the leaks.”

Eric Hendersen, Chief Engineer  
Pensacola Christian College

“After test and balancing revealed how leaky the existing ductwork was, the college tried to manually seal the leaks found throughout thirty or so risers. Particular attention was paid to the gaps in and around the fire dampers and access doors. Unfortunately, the manual sealing didn’t really make much of an improvement. As an alternative approach, we tried aerosoling from the inside of the risers and it quickly sealed even the most inaccessible leaks. The results was an overall leakage reduction of about 85%.”

Chuck Brown, Engineer  
Premier Engineering Group, LLC



### Aerosol – The Technology

- Developed at Lawrence Berkeley National Laboratory in 1994.
- Research for aerosol technology was partially funded by the U.S. Department of Energy.
- Aerosol is the only duct sealant technology that is applied from the inside of the duct system. It 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.

For more information on this sealing project or about Aerosol in general, contact Aerosol at (937) 428-9300. You can also visit the Aerosol website at [www.aerosol.com](http://www.aerosol.com).