

≡ CASE STUDY ≡

## OWNERS OF LUXURY OFFICE HI-RISE FIND AEROSEAL THE RIGHT PATH TO SOLVING BUILDING PERFORMANCE ISSUES

### Innovative Approach To Duct Sealing Turns Disruptive, Cost-Prohibitive Project Into A Stealthy Fast Fix With Energy Savings Providing An 18-month ROI

When it was time to sell an iconic luxury office building, the owners of the North Sydney skyscraper knew they had to resolve a problem they'd been coping with ever since the structure was first opened for occupancy in 2008. Designed to get high marks for building performance, the Arthur Street building had never come close to meeting expectations. Tenants were never happy with the AC. Energy costs were well beyond initial design levels. The consulting engineers told the owners that without sealing leaks in the ductwork, the building's state-of-the-art chilled beam system would never operate efficiently. The owners were told that manual sealing would cost \$3 million and include a year of disruptive work -- and so they put off the project until the impending sale required an immediate fix.

#### In Brief

**Building:** Arthur Street Building  
**Location:** North Sydney, Australia  
**Aeroseal Contractor:** Clean-Air Australia Pty Ltd.  
**Building Performance Consultants:** Seed Engineering  
**Goal:** Reduce energy costs, Improve AC effectiveness  
**Before Aeroseal:** 427 CFM of leakage  
**After Aeroseal:** 15 CFM of leakage  
**Results:** Certified 5-Star rated for building performance.  
10% the cost of manual sealing. 18 month estimated ROI.



Around that time, the engineers learned about aeroseal, a new method for sealing ducts that is fast and effective. By sealing from the inside of the duct system, workers can avoid all the usual disruptions that come from the demolition typically required to access and seal ducts. After a highly successful trial project, the aeroseal team at Clean-Air was given the green light to seal the ducts throughout the entire building.

Clean-Air mapped out the project and coordinated efforts to minimize tenant disruption. They had two months to seal the ductwork that served 23 different air handling units – including 20 vertical shafts and hundreds of square feet of horizontal ducts branching to individual offices. Working on weekends only, the Clean-Air team partitioned off the entire duct system into more than fifty individual sections. Each section was aerosealed – the computer controlled sealing system showing results as they were happening.

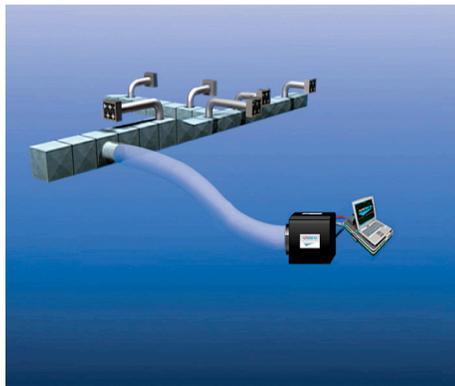
It took Clean-Air three weekends – a total of about 9 days to effectively seal the entire duct system. The final cost was about 10% of the estimated cost for manual sealing. When finished, the building surpassed all code requirements for top ratings. By eliminating virtually all leakage, the engineers were able, for the first time, to turn down A/C power while increasing the comfort of the entire building. By calculating the cost of conditioning the “lost air” engineers estimated an ROI of less than two years.

*“Duct leakage was at the root of many of the building performance problems – from high energy use, to inadequate air conditioning, to high levels of fan and AC noise. The cost and considerable disturbance associated with traditional sealing methods made fixing the problem prohibitive – until we learned about aroeseal duct sealing.”*

*“The Aroeseal technology allowed us to seal the entire 23-story duct system in a matter of days, without disrupting the existing tenants. We estimated that a job that was once cost prohibitive would now pay for itself in less than two years. We now recommend Aroeseal to most of our clients. We have yet to find a building that meets today’s standards for duct leaks and, in most cases, Aroeseal is the only sensible, cost-effective means of fixing the problem.”*

*“The Aroeseal system allowed us to quickly and easily calculate the cost savings we got from sealing the ductwork. Immediately after sealing, we could review the VSD profile and verify the extent to which the supply air had turned down. With an ROI estimated at about 18 months, we would be hard pressed to find any other project that provides that level of return.”*

Rob Lord  
Managing Director  
Seed Engineering



### **Aroeseal Technology**

In the aroeseal 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 aroeseal technology was partially funded by the U.S. Department of Energy.
- Aroeseal is delivered as a non-toxic aerosol mist that seeks out and plugs leaks.
- Aroeseal has proven to be 95% effective at sealing air duct leaks.

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