

# THE CASE OF THE CLOGGED COIL ON CAMPUS



**“Too warm.” “Too stuffy.”  
“Not enough air flow.”**

These were just a few of the countless complaints facilities managers of the Basic Medical Science Building at the University of New Mexico were receiving on a regular basis. The poor performance of their 40-year old HVAC system often resulted in lectures being moved outside or cancelled altogether. And the situation in lecture halls and research rooms serviced by Fan 67 had become particularly dire. The coil in that fan was completely clogged. According to Elmo Riggs, facilities supervisor, “You couldn’t see through it, or hear through it at all.”

## **Where are we going to get \$500,000?**

That’s the amount the Manager of Maintenance and Planning of the building, Fred Best determined it would take to replace the coils in all five fans serving the building. And that was just the cost of the installation. When you take into account the amount of downtime and disruption

the building’s occupants would suffer, the cost of replacement coils soars even higher. But Kevin Givens and Kelly Lynn of The Johnston Company, specializing in HVAC systems, offered a simple and much less expensive solution. “Install Steril-Aire UVC light emitters on the downstream of Fan 67’s cooling coil. That will clean the coil of its sticky, gunky biofilm buildup.”

While many of the facilities managers were skeptical that this could even remotely improve the situation, they gave Kevin and Kelly the go ahead. If the UVC worked, they would then install them on the remaining four fans.

A third-party, certified test and balance company was hired to perform baseline air-handler tests including measuring air flow, air/water temperature and static pressure drop.

**STERIL-AIRE**



## Breathing Rooms

The air quality in every room serviced by Fan 67 improved. Within weeks, complaint calls from professors were down. In fact, facilities managers were getting unsolicited positive feedback regarding the change in air temperature and quality. After 60 days, follow-up tests were performed. The results were incredible:

- **Air Flow - 992 CFM Gain (+14%)**
- **0.07" Static Pressure Reduction**
- **Net Cooling Capacity - 300,685 BTUH Gain (+208%)**
- **Dry Bulb/Wet Bulb Separation Gain (+78%/+50%)**

And after 270 days, another follow-up was done and revealed that the airflow was up a whopping 30%! It just keeps getting better and better.

In addition, University Industrial Hygienist, Terry Anderson, performed carbon dioxide measurements in a room served by Fan 67. In the corner of the room furthest from the ductwork, the air change per hour had doubled, even though the occupancy had also doubled! Facilities Supervisor, Elmo Riggs has his own spin on how well the UVC worked. "You can carry on a good conversation through the coil in Fan 67 now." In fact not long after the results of the experiment were known, the remaining four fans in the building were outfitted with Steril-Aire UVC.

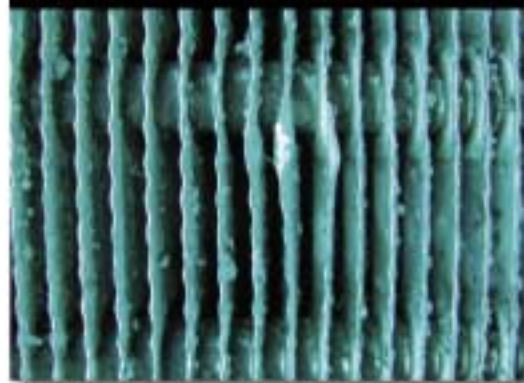
Facilities Supervisor, Elmo Riggs



Typical Coil Before Steril-Aire UVC



Typical Coil After Steril-Aire UVC



## Energy Savings of Nearly \$210,000

Not only did Steril-Aire help make the building livable, it saved the University approximately \$500,000 in coil replacement costs, and it's estimated it will save approximately \$209,030 in energy costs over the next four years.

• <b>First Year Dollars</b>	<b>\$23,195</b>
• <b>2nd Year Dollars</b>	<b>\$61,945</b>
• <b>3rd Year Dollars</b>	<b>\$61,945</b>
• <b>4th Year Dollars</b>	<b>\$61,945</b>
• <b>4-Year Total</b>	<b>\$209,030</b>

Cost Savings Estimates for Five Air Handling Units (First year dollars based on Fan 67 alone)

Not only will they be saving money in the long term, Fred Best says, "For about 10% of what we thought it would cost, we solved the problem with Steril-Aire."

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