SANUVOX

Case Studies

Tissue Paper Factory

06/2014

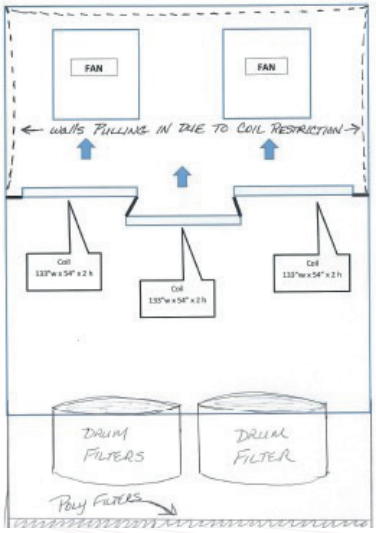
The Case

During the manufacturing process, a very fine “paper” dust is produced. It passes though the filters of the A/C system, and then biocontaminants develop on the 12-inch deep coils and clog the fins.

The Problem

There are 3 coils in the air handler. They are all 11” thick and measure 133” x 108” each. The company decided to install UV lights on only one coil as a trial, because they did not want to invest much into something they didn’t believe in.
The design pressure drop for the AHU is 2-2.5” wc. Pressure drop across the coil prior to washing was 5.5” wc.
The coils were washed two weeks prior to the installation of Sanuvox IL Coil Cleaners, so the surface debris that are shown in the pictures were removed. Pressure drop across the coil after power washing was unchanged at 5.5” wc.

Client tentative of chemical cleaning



Layout of the coils

The plate from the downstream side of the non-UV coil isn’t much worse than the coil with UV. Because of the coil layout, the downstream side of the non-UV coil was getting some residual exposure from the adjoining coil with UV. When looking at the coil layout, the ILs were mounted on the left side coil and the non-UV samples were taken from the center coil.

Sanuvox Customized Solution

Because of the thickness of the coil, Sanuvox supplied 4 IL 60” units installed upstream and 8 IL 60” units installed downstream.
The UV lights were operated for 3 weeks and the coil washed again.
5 days later, pressure drop was 4.2” wc., a drop of 24%.
Sanuvox treated one third of the coil area in this air handler and the company saw an improvement in airflow that couldn’t be achieved with washing all three coils four times a year.

Conclusion

Solely based on the pressure drop reduction from 5.5” to 4.2”, the fan horsepower reduction for a flow of 150,000 CFM at an electrical cost of $0.05/kWh results in annual savings of $10,000.

BEFORE UV INSTALLATION	AFTER UV INSTALLATION
5.5" of pressure drop	4.2" of pressure drop
High CFM fan horsepower	Fan horsepower reduction of 150,000 CFM
High electrical cost	Only $0.05/kWh of electrical cost
Expensive maintenance	Annual savings of $10,000

Comparative table 1.0

From previous experience, the savings in heat transfer energy is usually far greater than the pressure drop energy savings. At this moment, we do not have enough information on the operation of the coils to make valid estimates.

Additional Benefits

- P — Pressure drop reduction of 24%
- CFM — Fan horsepower reduction 150,000 CFM
- Electrical cost of only $0.05/kWh
- $ — Annual savings of $10,000

Customer Testimonial

Pressure drop across the coil was 5.5" wc. “Something the company hasn’t seen in years”. Five days later, pressure drop was 4.2" wc. “The lights seem to be doing it alone without washing”.

Anonymous