

# Attenuations

*Providing noise control solutions for industrial applications.*

## McGill AirSilence LLC

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McGill AirSilence supplied a silencer, double-wall elbow, and acoustical enclosure to reduce noise levels at Bradford Industries' facility in Massachusetts.

McGill AirSilence LLC provides noise control solutions for a broad range of industrial applications. McGill AirSilence offers full-time engineering staff and an acoustical testing facility dedicated to the production of acoustical products. And because not all noise problems can be solved with one piece of equipment, McGill AirSilence offers a full line of acoustical products to meet noise control needs. This case history is an example. McGill AirSilence combined three products to solve a noise control problem for Bradford Industries in Lowell, Massachusetts.

Bradford Industries manufactures more than 10,000 different types of coated fabrics. When the company installed a new incinerator, Director of Manufacturing Support Services Carl Richter said he anticipated a noise problem. The incinerator system, supplied by JWP Air Technologies of New Jersey, includes a 450 horsepower blower, which presented a significant source of noise in addition to the incinerator itself. The combination incineration and reclamation system removes volatile organic compounds from the air discharged from ovens and processes. The

noise level 160 feet from the incinerator blower was approximately 86 decibels.

As he predicted, it was not long before Richter received complaints from residents in a nearby apartment complex. The exhaust stack ended less than 200 feet from some of the second floor windows, and people in the apartments described the sound as that of a jet engine.

"When we entered into this thermal oxidizer project, we anticipated having a noise problem," says Richter. "We needed to see exactly what we would have as a problem before we tried to fix it."

Richter assured the residents that the noise would be dampened as soon as possible. He called in a consultant, who took noise level readings and recommended that noise levels be reduced by 25 decibels. But determining the equipment needed to achieve the required noise reduction was not as easy as Richter had hoped.

"This was my first noise control project, and the more I got into it, the more concerned I became," says Richter. "I was getting different recommendations from the consultant and from each supplier."

Richter had earned the trust of the nearby residents and he did not want to risk damaging that trust. He needed confidence in a supplier and confidence in the supplier's products.

Richter places a lot of emphasis on exceptional customer service, and he expects nothing less from his suppliers. "Our company philosophy is that even though we're a coated fabrics manufacturer, we are a service company," says Richter. "If we have a customer with a problem, we do our best to fix it. We demand the same service of our suppliers. People count on suppliers. A week late is not acceptable. Ultimately, we make our customers successful, we make ourselves successful, and we make our suppliers successful."

After 3 months of looking at products and talking to suppliers, Richter had not found the solution that he could feel confident with. "Everyone was sending me numbers but no one would say, 'this product is going to solve your problem,'" says Richter. "Everyone was saying 'install this equipment first and if you still have a problem, you can install this.' But I couldn't go to management every 6 weeks

asking for more money, and more importantly, I had to do something for our neighbors."

Richter explained his dilemma to Robert D'eon of Clean Air Systems. D'eon, a local contractor, had worked with Richter on other projects. D'eon had previously purchased a McGill AirSilence silencer for one of his jobs, and he told Richter to consider a McGill AirSilence SOUNPAK® silencer. D'eon contacted Dennis Barry of Nauset Engineering, a McGill AirSilence representative, and McGill AirSilence submitted a quote for the project. Because D'eon had confidence in McGill AirSilence's product, and Richter knew that D'eon would allow nothing but quality workmanship, Richter awarded D'eon the project. McGill AirSilence received the order for a SOUNPAK round silencer and an ACOUSTI-k27® double-wall elbow for the incinerator's exhaust stack and a SOUNDSCREEN™ acoustical enclosure to house the blower and further reduce the noise levels. The installation would be provided by Hall Sheet Metal Works of Wakefield, Massachusetts.

Since it had taken longer than Richter had anticipated to find a supplier, he not only needed a quality product, he needed a supplier who could work fast.

Delivering and installing the equipment on time was crucial. Richter had scheduled a 3-week shutdown, and the noise control equipment would have to be ready for installation during that scheduled time. Two of the plant's product lines depend on the incinerator system for air pollution control, and without the incinerator running, the lines could not operate. Each additional day after the shutdown that the lines could not run would be costly.

McGill AirSilence received the approval to proceed with the fabrication of the silencer and elbow just 2 weeks prior to

the scheduled shutdown. Because of the required attenuation, a standard-length silencer would not have reduced the noise levels sufficiently, so McGill AirSilence engineers designed a special 16-foot-long, 64-inch diameter SOUNPAK double-wall silencer.

In addition to the silencer, McGill AirSilence supplied a 64-inch diameter ACOUSTI-k27 elbow with 3-inch-thick insulation for the exhaust stack. The silencer and elbow came with flanges for quick, direct mating in the field.

Because temperatures of the gases emitted through the exhaust stack range from 450°F to 600°F, special materials had to be used. The silencers and elbow are constructed of aluminized heat-resistant steel and lined with thermal insulation wool.

The staff in McGill AirSilence's acoustical plant was able to meet the challenge of manufacturing the nonstandard silencer and the ACOUSTI-k27 elbow in just 2 weeks.

Hall Sheet Metal Works removed the existing metal framework and exhaust stack and installed a new framework and the new noise control equipment in just 10 days. Nauset Engineering purchased and supplied vibration isolators to control the resonance of the steel.

The system was installed and ready for startup right on schedule. The SOUNDSCREEN housing was scheduled for installation 7 weeks after the silencer and elbow. McGill AirSilence was able to deliver the housing ahead of schedule. The 12-foot-high SOUNDSCREEN enclosure measures 15 feet, 9 inches wide by 19 feet, 8 inches long. The enclosure came supplied with access doors and a ventilation system to circulate fresh air and keep temperatures in the housing down.

"The installation went very smoothly," says D'eon. "Everything went together



The 64-inch diameter ACOUSTI-k27 elbow is constructed of aluminized heat-resistant steel and lined with thermal insulation wool.

perfectly. The SOUNDSCREEN measurements were so perfect that not one cut was needed during the installation. It was a perfect erector set."

Not only did the installation go smoothly, the startup did as well. McGill AirSilence's noise control equipment was able to achieve the required noise reduction.

"The system smothers the noise unbelievably well," says Barry. "McGill AirSilence was a terrific help; they really responded, and their customer (Clean Air Systems) appreciated their response. Richter truly was between a rock and a hard place to get this job done. It was a good all-around effort."

Bradford Industries has set its standards high, and Richter had to make certain those high standards were met when it came to solving the plant's noise control problem. McGill AirSilence was able to meet those standards.

"There is no comparison to what the noise was like before the equipment was installed," says Richter. "I never would have believed that the equipment could have this big of an effect."



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