McGill AirFlow Corporation

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Finding ways to better serve our customers
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number 7

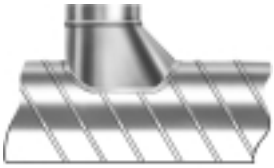
Total System Design—HVAC, Dust Collection Systems Clean Up for Aspire Pharmaceutical

Ahead of schedule. Below budget. Better system.

All describe the HVAC and dust collection systems at Aspire Pharmaceutical's Weston, Florida manufacturing, research and development facility, thanks to revisions made to original plans by the mechanical contractor and McGill AirFlow.

I/C Mechanical won the project via competitive bid. After reviewing the original plan with a McGill salesperson, it became obvious: The all-rectangular HVAC system should be converted to all-spiral. It would outperform rectangular duct and better meet the needs of the building without increasing cost.

"We worked with McGill previously and always benefited from their design expertise, prompt deliveries and excellent product," says Tom Szikszay, I/C Mechanical president. "They could substantiate our initial hunch and help us improve the system for the customer."



Using manifolded spiral ductwork reduced installation time and costs.

The Path to a Better System

Several factors led to the spiral ductwork conversion.

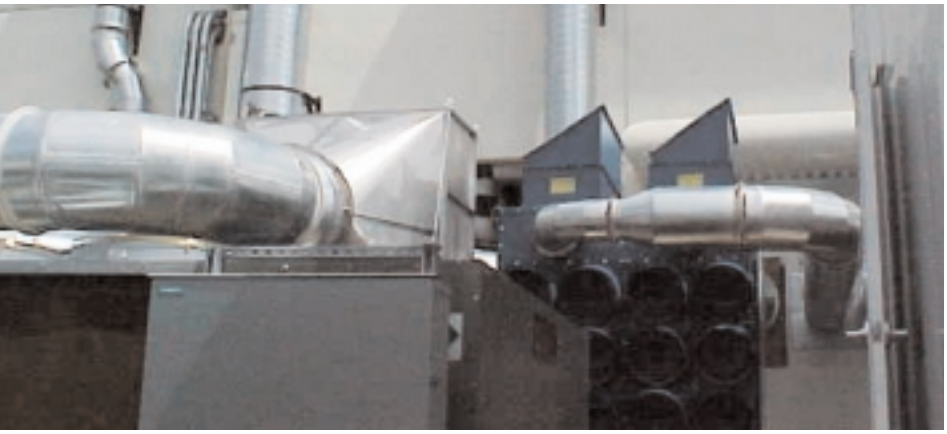
The supply duct had to meet the +10-inch water gauge (wg) pressure rating as defined by SMACNA's *1995 Duct Construction Standards*. SMACNA is the Sheet Metal and Air Conditioning Contractors' National Association.

"Meeting that standard meant reinforcing the rectangular duct," Szikszay recalls. "It would prolong the time we would need on the jobsite for installation, and, adding the increased labor cost and the cost of reinforcement, made spiral duct the low-cost choice."

Conversion space was no problem with 15 feet of space above the ceiling. For example, one additional foot of ceiling space is needed to convert a six-by-three foot rectangular duct to its equivalent 48-inch diameter spiral duct.

The one-percent maximum leakage allowance was also better met with spiral duct. "That variance is nearly impossible with rectangular duct," says Rick Boyer, sales manager and engineer for McGill AirFlow. "Rectangular duct requires more joints than spiral duct because it is only available in five-or six-foot sections; spiral duct is available in 20-foot sections. Each joint creates an increased possibility for leaking."

The number of field joints was reduced by more than 60 percent using manifolded spiral ductwork instead of rectangular ductwork. Fewer joints translated to reduced installation time and costs.



Aspire Pharmaceutical's installed HVAC system includes 6,400 feet of supply and return ductwork and 85,000 pounds of metal for the eight air handling units.

The duct system was custom fabricated. "The joints for branch takeoffs were manifolded onto duct sections and welded at the McGill factory under a controlled environment, not 15 feet above the floor," Szikszay recalls. "They were better-sealed joints with consistent high quality. When we received the duct, it was ready to go."

Changing the Design

McGill reworked the HVAC system and delivered the first product in three and one-half months. "We redesigned all supply and return ductwork for eight air handling units, generated CAD drawings, reviewed them, made corrections for final construction, developed a construction schedule, and met the first product-delivery date," recalls Boyer. "It was fast paced."

The redesign was made easy by using McGill's proprietary UNI-DUCT® computer-aided-design program.

"Once a design is put into the program, it takes 15 to 20 minutes to evaluate how changes affect airflow and acoustical performance characteristics," says Todd Talbott, McGill's manager of engineering and sales-service. "Our goal is to improve the system by eliminating unneeded materials and improving performance, air pressure and acoustics. Eight times out of ten we achieve that goal. This is total system design–true value engineering. We use UNI-DUCT to evaluate approximately 1,000 jobs annually."

The new design converted the rectangular duct to spiral while meeting or exceeding the performance characteristics of the original design.

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The two dust collector systems were installed as originally specified. Each has a very high negative pressure and perform within the -30-inch wg requirement of SMACNA's *Round Industrial Duct Construction Standards*. McGill provided fully flanged, spiral duct, as required by SMACNA, totaling 2,000 linear feet of duct and 16,000 pounds of metal.

Eighteen various fume exhaust fans were installed for the different processes within the plant. Duct leading to and from the fans total 500 feet and 4,000 pounds of welded, stainless steel, flanged exhaust ductwork. The discharge stacks were 10 feet tall, per local code, and were provided fully assembled from McGill's factories.

Timing is Everything

About a month before construction, Boyer and Szikszay developed a seven-month construction sequence of the installation for Integrated Project Services (IPS), the architect, design engineer and construction manager of Tampa.

"Knowing when we needed each piece of equipment allowed McGill to schedule assembly and shipping," Szikszay says. "We were very pleased with their deliveries—they were right on time." For nearly four months, McGill shipped at least three, full 50-foot trailers a month from its Orlando and South Carolina plants.

After the second month, I/C Mechanical was a month ahead of the other subcontractor, thanks to the easy installation of the spiral duct. Boyer recalls, "It flew up. The best thing to be is ahead of the game in the construction industry."

Ahead of schedule. Below budget. Better system. These are the attributes to which Szikszay has become accustomed in working with McGill AirFlow.

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