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Revised HVAC System Generates More Efficiency, Less Noise, More Fun

In the world of design, it's often said, "Less is more." Everyone involved in designing and installing the HVAC system for Webster, New York's indoor, Olympic-sized community pool would agree.

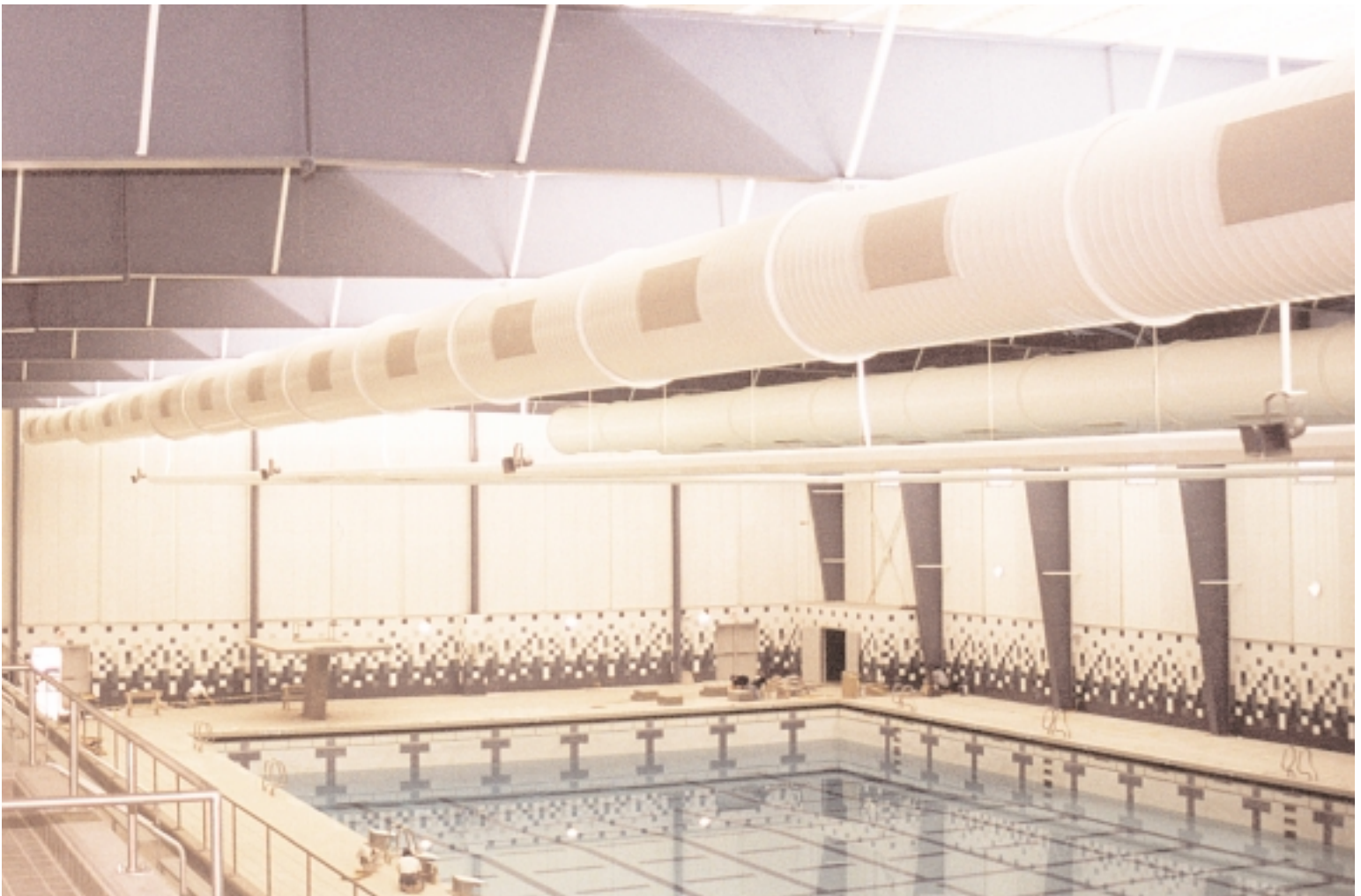
Eliminating one of the three proposed air-handling units and 300 feet of ductwork resulted in substantially reduced installation and operating costs, enhanced efficiency and lighting, and – most important to Webster – reduced noise.

"Air quality and noise level were major concerns," says John Bodak, Webster Central School District Clerk

of the Works. "Increasing quality usually increases the noise due to more air turnover. Since the entire room is either tile or water – hard surfaces that amplify air movement sounds – we worked hard to minimize noise."

The Township of Webster joined with the school district to build a world-class aquatic center. The pool, on a high school campus, is 50 meters by 23 meters and can be separated with a bulkhead to accommodate several groups. Designed to host competitions, it has two one-meter boards, a three-meter board, and an area for a five-meter board. It opened April 2002.

"McGill made the installation easier and quicker by installing the diffusers before delivery."



Proving 'Less Is More'

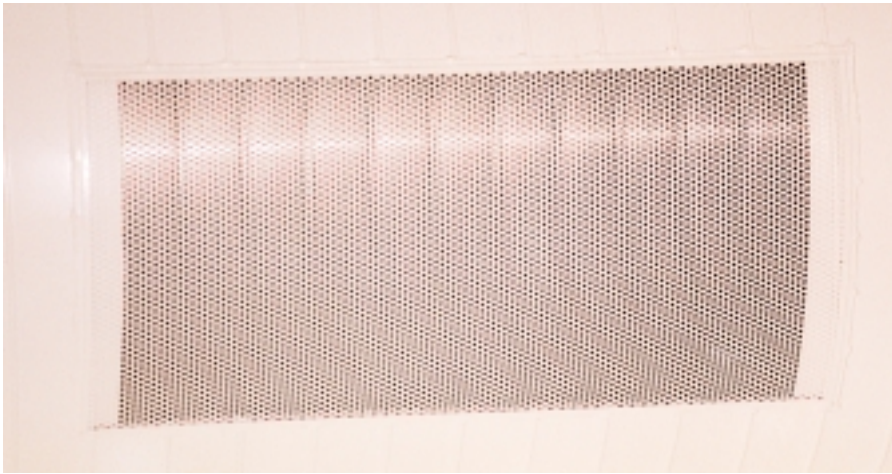
After the contract was awarded, McGill AirFlow worked with the mechanical contractor, William J. Thomann, Inc. of Rochester, to boost the system's efficiency and acoustic performance.

Original plans called for three air-handling units. "The mechanical contractor proposed using two, but increasing their size," recalls Ron Speicher, McGill AirFlow's manager of sales for Upstate New York. "To ensure any revision would meet air pressure and acoustic requirements, we evaluated the plan using UNI-DUCT®, McGill's proprietary computer-aided-design program."

The Webster redesign was one of approximately 100 jobs McGill evaluated using UNI-DUCT in 2001.

Todd Talbott, McGill's manager of engineering and sales-service, input the original plan into UNI-DUCT.

To create an architecturally uniform appearance, all the diffusers are the same size.



"Once a design is input, it takes 15-20 minutes to evaluate how changes affect the airflow and acoustical performance characteristics," Talbott says. "This is total system design – true value engineering. Eight times out of ten we improve both the air pressure and acoustics by refining or redesigning the system."

The Solution

In Webster's case, removing one air-handling unit made sense.

The system includes two 42,000-cfm air handlers, 750 feet of McGill AirFlow's UNI-SEAL™ duct and fittings, and 56 Type A, full-framed DUCT-D-FUSER™ air outlets. Each air handler is housed in its own room and requires 75 filters.

Two runs of duct above the center of the pool, decreasing from 60 inches to 44 inches in diameter, draw air out. Two runs above the outside edges of the pool, decreasing from 50 inches to 36 inches, return air into the room. Due to the long span between steel beams in the ceiling, the duct was hung 24 feet on center via aluminum angle rings.

Talbott also used UNI-DUCT to evaluate placement of every DUCT-D-FUSER and the required opening size

for each. This balances the system without the need for dampers or extractors, which can potentially create noise problems. To create an architecturally uniform appearance, all the diffusers are the same size.

The duct was installed before the pool was dug. "McGill made the installation easier and quicker by installing the diffusers before delivery," Thomann recalls. "It eliminated having to balance the system after installation, which would have been done 34 feet over a pool."

The DUCT-D-FUSERS also solved the potential problem of returning the air back into the room without creating drafts. "It shouldn't blow on swimmers," says McGill's Speicher, "so this was an excellent application of the diffusers. They are designed to disperse air evenly, and thus reduce drafting. The system is so efficient it completely eliminates any chlorine smell."

Teamwork Was Key

"The changes we made as a team resulted in an easier-to-install application and a more efficient HVAC system," says William Thomann, project manager for William J. Thomann, Inc., the mechanical contractor. "We eliminated 300 feet of ductwork.... What was left became larger. Less ductwork made for better lighting. We also simplified the design, thus providing fewer restrictions and reducing noise. More significant was having only two air-handling units, dramatically decreasing operating costs."

Thomann also commended McGill for their teamwork. "McGill delivered the duct when we needed it—right on schedule. They were very cooperative and easy to work with on the design."

A 'World-Class' Match

The township and school district are pleased with their efficient new HVAC system that costs less to operate than anticipated. But they appreciate the acoustical benefits most of all.

Lee Vanlare, school custodian, works with the system every day. "The system is incredible," he says. "When you enter the pool area, you know it's on. But considering how much air is moving, it's very quiet. You can hear yourself think."

This job was a definite match for Webster's world-class aquatic center. Proving once again that 'less is more.'

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