

CASE STUDY

Making the grade: Center Line classrooms get an A for quiet IAQ

If schoolroom comfort could be graded, then the classrooms at two elementary schools in the Center Line, Michigan school system would receive an A for improved indoor air quality (IAQ). New unit ventilator systems installed in the classrooms provide more than air conditioning in the 40-year-old schools. The units are also models of classroom quiet and climate control. The redesigned AAF®-HermanNelson®, unit ventilators from McQuay feature new airflow technology that keeps the units quietly in the background, without interfering with a teacher's instruction or individual concentration. Plus, teachers can control the room's temperature from the wall thermostat. All combined, it's a package that superintendent Terry Follbaum expects will provide a substantial boost to learning productivity.

"We estimate that lost learning productivity costs us two to three weeks per year," said Follbaum.



"Outdated ventilation systems and high humidity levels can affect the health of students and staff, as well as the length of time they're comfortable in a classroom. Renovating the ventilation systems gives us one less variable to worry about in terms of providing a quality learning environment."

Financing for a district-wide HVAC renovation came from an \$8 million bond, passed in December 1999. The Center Line school district, located near Warren, Michigan, includes four elementary schools, an early childhood center, a middle school and high school for a total enrollment of approximately 3,000 students. "With the trend

toward longer school days and a longer school year, the bond has provided a solution to keeping students comfortable in school for longer periods of time," said Follbaum.

According to John Argenta, architect/engineer, CDPA Architects, Southfield, MI, two of the elementary schools, Crothers and Miller, were the last to be upgraded in the two year project, but the first to benefit from the redesigned AAF-HermanNelson unit ventilators. At Crothers, with a student body of about 300, heat was previously piped from the basement boiler to the school's 16 classrooms. Fans dispersed the





heat, but created hot and cold spots and provided minimal ventilation. At Miller, similar in size to Crothers, unit ventilators provided fresh air but no air conditioning, which heightened concerns about mold and mildew. The AAF-HermanNelson unit ventilators give each classroom its own self-contained air conditioning and ventilation system.

The unit vents are redesigned with GentleFlo™ Air Moving Technology, making them 65 percent quieter compared to previous models, according to sales engineer Carmen DeAngelis of Thermal-Netics, Inc., Berkley, MI. The redesigned fan wheels are larger and wider so they rotate at

lower speeds to reduce fan sound levels, while a new blade shape minimizes turbulence from air flow and air pressure, also reducing sound levels. "By redesigning the entire air moving system, the unit remains in the background and barely intrudes on classroom activity," said DeAngelis. In addition, the unit's uniform air discharge and even heat transfer eliminate the problem of hot and cold spots in a classroom.

In addition to being quieter, the units give teachers greater control over their classroom temperature and ventilation, according to Center Line maintenance supervisor Craig Anderson. "Now teachers have wall-mounted thermostats that let

them adjust the temperature from 68 degrees F to 75 degrees F," he said. The units are designed with McQuay's MicroTech™ direct digital controls, which can be programmed to provide a precise operating sequence, including switching on and off before and after class time.

Economically, the units are a sound investment for a district the size of Center Line. They offer low initial cost while providing recommended ASHRAE levels of fresh air (15 cfm per person) without the expense of major renovation.

"The new systems give us air conditioning, heat, ventilation—and five times the amount of fresh air we used to get," said Follbaum. "The teachers are thrilled to have this available to them."

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