

Siemens and Pine Grove Middle School are creating the perfect place for new minds.

Teaching in a changed world demands a changed teaching environment.

Upstate New York is known for its temperature extremes, with sweltering summers and nine-foot snowdrifts in the winter. Buildings in this area of the country need to be able to stand up to the elements, with high-performing yet energy-efficient building system components. Nowhere is this more important than at area Pre-K -12 schools where students, faculty, and staff spend a significant amount of time. Building technologies from Siemens gave attendees of one local school district all of this and more, including a new, perfect place to learn, concentrate, collaborate, think, and create.

Since 2008, East Syracuse Minoa Central School District (ESM) has engaged Siemens as a business and technology partner to enhance its seven 1960s-era schools and several district buildings with energy efficiency and building systems improvements.

In addition to reducing energy costs, ESM wanted to fund these building and energy efficiency improvements through energy savings; to improve energy conservation efforts; to provide energy awareness and education for students, faculty, and staff; to take advantage of alternative energy technologies; and to create community awareness for its energy- and environmentally-responsible programs. Among the earliest building improvements at ESM were:

- Lighting retrofits throughout the district to take advantage of energy-efficient options;
- Premium, energy-efficient motors and variable frequency drive pumps and fans for HVAC systems;
- New windows and doors to conserve energy;
- District-wide energy management system;
- New boiler plants in four ESM buildings; and
- 25 kW onsite solar power system.

The new boiler plants alone have saved ESM as much electricity as 6.2 average American homes will consume over the course of a year. And in total, the improvements are generating hundreds of thousands of dollars in annual energy savings—funds that the district is investing to improve the educational environment.

Learning Environment Transforms with the Times

As a learning and teaching organization, ESM has sought both a solution and partnership that would contribute to overall educational design and learning models for the district; thus, the building improvements did not signal the end of Siemens' work at ESM. Instead, it expanded to understand how the district could adapt to a new world.

"We were very cognizant of the fact that our district had been built during an era that focused on industry. We had to move away from that siloed delivery of content-area subjects in a separate platform and toward building transdisciplinary learning, problem solving, and project-based learning," says Superintendent Dr. Donna DeSiato.

Siemens and ESM leaders together took learning tours to STEM (Science Technology, Engineering, and Math) model schools to determine the best possible ways to support ESM's vision. ESM developed an integrated learning approach to teaching subjects collaboratively, helping students develop STREAM (Science Technology, Research Engineering, Arts, and Math) knowledge as well as problem solving and presentation skills. Siemens partnered with ESM to transform the curriculum, helping develop true transdisciplinary projects through consultative support and by hosting symposiums.

Middle School Redesign Shapes Young Minds

Through this process, ESM and Siemens began to discuss Pine Grove Middle School, which educates approximately 750 students every year, and how the learning model could transform into a highly engaging, student-centered environment with relevance and real-life application.

"We knew that we were providing instruction in a digital age and in a global economy, and we needed to design the building to support the learning model that was focused on problem solving, collaboration, critical thinking, creativity, and innovation," explains Dr. DeSiato. With the support of a performance contract, the district engaged the community to explore what a new school building should offer students.

The new Pine Grove Middle School opened in 2016, and ultimately, the school building has become an educational space for innovative learning models, and not simply a group of classrooms. The building features larger openings between rooms and into the corridors, spaces for individual students, and flexible spaces for groups of all sizes. Attendance is up, and so is student performance in learning.

"We are very pleased with the fact that we have an environment that is appropriately lit and that the heating and cooling systems are now state of the art. The climate within the building is the optimal climate

for student learning. The redesign of Pine Grove Middle School was one of the moments in the history of our school district that will always be recognized as a transformational moment,” Dr. DeSiato notes.

For Further Information

This case study and pictures are available at: <http://www.Usa.siemens.com/perfect-places-pinegrove>

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