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Program aims to transform school labs

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JOSH REYNOLDS FOR THE BOSTON GLOBE

An outdated safety shower stands in the back of the Chemistry lab as teacher Chris Koutros leads a class at Stoughton High School. Stoughton plans to petition for federal monies to upgrade the school's outdated science labs.

STOUGHTON - The megatransformer is an intimidating array of black sockets tucked inside a closet in the only physics lab at Stoughton High School, an aging building with 1,200 students.

The transformer is so old that educators guess it was built around a half-century ago. And while its aim is to regulate the electrical voltage of equipment used during science experiments, it barely

works.

“The problem is it is erratic,” said longtime physics teacher Michael Carey, pausing during a lesson on lab safety for high school seniors yesterday. “I haven’t used it in 30 years. “

The antiquated science facilities at Stoughton and other high schools across Massachusetts are driving a new \$60 million state initiative. The Massachusetts School Building Authority, which helps fund large, school-based projects, announced the pilot program yesterday, hoping that it will transform old labs into state-of-the art centers.

“We are making investments that would give high schools in Massachusetts the tools they need in the 21st century, without building a whole new school,” said state Treasurer Steven Grossman, chairman of the authority’s board.

The authority has created its own model of a high school science lab, complete with a video, for applicants to replicate. In the video, students sit in spacious labs with laptops on their desks, while a teacher stands at the front of a room that features a large computer monitor.

The desks move easily so students can conduct group projects and consult with their peers. A series of differently shaped plants line shelves along large windows. There are first-aid bins, microscopes, stainless steel refrigerators, and ample room for storage.

The authority’s leaders say that while many of state’s public high schools have been renovated in recent years, a great many are in decline. Some high schools are so dated that their science labs do not have the technology, plumbing, or gas lines to conduct modern experiments.

With state and federal government calling for more science innovation as the nation’s economy continues to slump, the authority said that public high school facilities need renovation now more than ever.

Katherine Craven, the authority’s executive director, said that as she traveled the state over the years, many school districts expressed a need to accelerate science learning but were languishing on their laboratories.

Schools - including those with aging facilities such as Agawam, Lowell, and North Quincy - can begin applying for grants next month. Six to 12 of the schools could get awards of at least \$1 million each beginning early next year, Craven said.

“We are waiting for the districts to come to us and describe what the deficiencies are in their science labs,” she said. “In some cases, they are pretty atrocious. They hadn’t had a working Bunsen burner in a generation. Those are the kind of schools we are targeting.”

With the competitive grants, school districts must show a real need at their public high schools that prevents them from cultivating and training a new generation of chemists, biologists, and physicists, Craven said.

Schools must also follow the science lab designs created by the authority that feature a flexible layout for moving furniture, a net of 60 square feet per student, combined lecture and lab rooms, and plumbing and gas lines along the walls.

An advisory group - including the authority's board members, staff, and industry professionals - will make recommendations on the projects.

The authority, a quasi-independent government group established by the Legislature in 2004, provides the bulk of the funding for new capital projects, additions, and renovations to public schools.

Stoughton High is eligible for the new grants, but will not apply because the town plans to build a new school.

Yesterday, biology teacher Kevin Kellerher stood before a class of sophomores as he explained the structure of a cell. The lab looked like any other classroom, except for the electrical outlets that dangled from cables like spiders and hovered over the heads of students.

"If we wanted to run a lab here, we have to pull them down," Janet Sullivan, who heads the school's science department, said of the outlets.

Sullivan stressed that the equipment is usable and safe, but Stoughton high will have the potential to do more when it gets a new facility.

Superintendent Marguerite Rizzi said that, like other science labs at public high schools across the state, Stoughton's is a victim of its time. "But times have changed," she said, "and as things change, they become obsolete."

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