

Student ideas for green roof make school a teaching lab

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At Boston Latin, sustainability is goal

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An artist's rendering of the Boston Latin School's green roof shows a new stairway and elevator, as well as a greenhouse and cafeteria. The greenhouse will be heated by solar thermal panels. (Studio G Architects)

By June Q. Wu, Globe Correspondent | July 26, 2010

Take Boston Latin School, and pack on top of its building a weather station, a greenhouse, two outdoor classrooms, a cafeteria, and a garden. Then add solar panels, wind turbines, and the outdoor elevator.

It's a 70,000-square-foot, \$6.2 million green roof dreamed up by Boston Latin students, and it's becoming a reality.

"It started out as a simple request for how the school can reduce its carbon footprint," said Gail Sullivan, the architect who has been working with the students free of charge. "But then the students said yes, yes, and yes to all the different features."

Unfazed by the hefty price tag, students from the school's Youth Climate Action Network have been raising money and applying for grants over the past year to make their green wonderland a reality, piece by piece.

A 28-solar panel array and 350 trays of sedum, a flowering succulent plant, have been installed on the school's roof.

Up next are the outdoor classrooms and elevator, a \$2.7 million project to be completed in fall 2011, according to Sullivan, who works for Studio G Architects.

Sullivan said she expects to finish the project in five years, but said the timeframe depends on when the students can raise the money.

But the vision does not stop there.

Last week, students in the Youth Climate Action Network were helping 30 Boston area teachers, 15 from Boston Latin, to develop a middle school and high school sustainability curriculum to be piloted this fall at their school. Eventually, classes will be held on the roof.

Students can measure the wind velocity from the rooftop turbines or test how much energy the solar panels generate. English and art classes can find inspiration from the rooftop orchard and garden.

Other schools can plan a field trip to the top of Boston Latin, which has grades 7 to 12. The possibilities are endless, students say.

“A lot of what we learned about climate change seemed very abstract; it didn’t seem like kids could really do anything,” said Nhu Le, a sophomore at Boston Latin and a member of the network.

But after a screening of “An Inconvenient Truth” three years ago, Le said, she and her peers started brainstorming ideas for transforming the nation’s oldest public school into an energy-efficient building with an avant-garde sustainability curriculum.

“I think schools can do a much better job integrating sustainability into the curriculum and not just have one unit about climate change but incorporate entire themes,” Le said.

Led by eighth-grade US history teacher Cate Arnold, the network launched a campaign in 2007 for sustainability education across the state. The students hope to see the project completed when they graduate.

While several schools in the state have installed green roofs — two in Boston public schools — Arnold said that from talking with other educators and school officials, Boston Latin’s green venture appears to be the most complex, student-driven project with a heavy emphasis on integrating sustainability education.

In a series of workshops this summer, Boston area teachers of all subjects are developing lesson plans integrating sustainability ideas, with the help of the Children’s Environmental Literacy Foundation, a nonprofit based in New York that develops sustainability curriculums in schools.

At Boston Latin, half the 400-member senior class takes environmental science as an elective course, according to Lynne Mooney Teta, the headmaster.

Under this fall’s pilot program, all students will be exposed to sustainability issues in a wide range of courses.

“It’s not an add-on to what teachers are already doing; it’s simply a shift in perspective,” Teta said.

“Teachers from across the building of all disciplines will play a role.”

With many features, the green roof that students envision is more of an educational center than a cost-saving measure for the school, Sullivan said.

Sullivan was unable to provide an estimate of how much energy the school would be saving from the various green features, adding that her firm is conducting an energy-use analysis.

“If the only goal were reducing energy costs, it might make the most sense to cover the roof with solar panels,” Sullivan said. “The process of creating something that can shape their school is an incredibly educational process, and the students are really excited about using the roof as a kind of learning lab.”

The green roof, once constructed, will allow teachers to incorporate hands-on experiments into the sustainability curriculum, serving as an example for school districts across Massachusetts, Boston Latin faculty said.

“I teach a section on energy, for example,” said Christopher Doss, a high school physics teacher. “The students can use the green roof to look at how we use energy, how much energy is used.”

Jesse Southwick, another physics teacher, agreed, adding that he envisions sustainability issues as the “backbone of the curriculum,” integrated in many subject areas.

“Our goal as educators is to help students understand how to get to a sustainable world,” Southwick said.

For Steven Gingras, a sophomore at Boston Latin and a member of the network, growing local foods in the rooftop greenhouse for the cafeteria is his favorite feature.

“I’m excited for it to teach students about agriculture and hard work,” Gingras said. “It’ll be nice to eat something that you’ve grown.”

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