

## ● Selinsgrove Area Elementary School-2010 Overall Design Winner

For the second year in a row EI Associates received the Overall Design Award at the Green Building Association of Central Pennsylvania's Green Building Design Awards (<http://gbcpa.org>). Our 2010 design for the Selinsgrove Area Elementary School was celebrated at the annual awards ceremony on April 15, 2010, which was held at Harrisburg Area Community College. Awards were presented to winners in the six LEED credit areas: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality and Design Innovation. Selinsgrove Area Elementary School was entered in each of the categories.

The Elementary School was renovated and expanded to support educational needs for up to 665 students in kindergarten through second grade. The District consolidated students into a single building that conserved land resources, reduced energy consumption and costs, reduced water consumption, lessened storm water impact, and supported the regional economy by utilizing local construction materials.

Included in the new construction is a green vegetative roof over the gymnasium lobby with an adjacent observation window for the students. Numerous ecological and economic benefits have been achieved, including extended roof life expectancy, sound insulation, additional thermal insulation, on-site storm water retention, climate moderation and pollution reduction in addition to providing a visual teaching tool for the students.



*Green roof over the gymnasium lobby with an adjacent observation window for the students. Below is a courtyard utilized for several student activities*



*Television Studios (above)  
Media Control Room (right)*

## ● New Media Literacy Recording Studio at Summit High School

The Summit School District strives to provide program offerings that reflect our ever-changing world, and new technology applications are being incorporated into the curriculum continuously. EI Associates recently assisted the District with the design of a new broadcast studio at Summit H.S. as part of the District's Media Literacy curriculum.

The High School's former photography complex was totally renovated and converted into a new Media Literacy Center. The 1,100 square foot space, located in the center of the school, now includes a state-of-the-art television studio, control room and editing room to accommodate twenty students for television program production to be aired on local TV.

Special consideration was given to the control of sound and light by means of new wall, door and vision panel construction as well as treating existing walls for sound isolation. A new, remotely located HVAC unit with new duct work and dampers now eliminate noise transmission into the studio. EI's work also included the design of power distribution systems and the coordination of the layout to accommodate equipment and lighting that was specified by the District's video equipment vendor. Additional lighting and wiring will be installed in the auditorium, cafeteria and gymnasium to record events at those locations for editing and broadcast from the new Media Center.



*Architect's rendering, main entrance, phase 1*

## ● Construction Underway In Bedford

Bedford Area School District hosted a groundbreaking ceremony in August for the renovation and expansion of the Bedford Area Middle School.

The original 1979 building has been re-designed to meet current educational program requirements with sustainable features to increase energy efficiency. The design includes use of recycled materials, water efficient fixtures, high-efficiency lighting and a new geothermal heating/cooling system. The project is designed to obtain Leadership in Energy and Environmental Design (LEED) Silver certification.

Phase 1 of the project consists of interior renovations and upgrades to improve the educational environment and meet curriculum needs. A later construction start for the Phase 2 portion of the project will begin in late 2010. Phase 2 includes construction of a new Gymnasium and Fitness area.



*Main entrance to new building lobby*

## ● At the Place of the Rapids

The Lower Dauphin School District recently retained EI Associates to expand and renovate Conewago Elementary School. The project, which is currently under construction, includes 70,000 square feet of new building with 11,400 square feet of renovated existing building. It is designed to obtain LEED Silver Certification to demonstrate the benefits and promote awareness of responsible Green Building design.

The name of the building, Conewago, comes from the Iroquois word meaning "At The Place Of The Rapids", referring to rapids located nearby on the Susquehanna River. This theme has been incorporated into the new building lobby by means of a water wall which will remind students as they pass by of the importance of water as a natural resource. The project also incorporates a "Grey Water" collection system which will supply the school's toilets using recycled rainwater. To promote energy conservation, an onsite demonstrational wind-turbine will provide a portion of

the electricity the building uses daily. Conewago Elementary will also generate a portion of its daily electrical usage by means of photovoltaic panels mounted on the roof.

Light pollution on the exterior of the building will be reduced with the use of LED luminaries which last longer and take less energy to light than traditional fixtures. Student comfort will be controlled by using high-efficiency geothermal heat pumps. This feature, as well as the rest of the building systems, will be controlled via a Web-based, automated building control system. The building features will also be monitored by students via a building "Dashboard" mounted in the lobby, allowing them to view in real time the usage and output of these systems, such as the demonstrational wind turbine. Included in the project is also an extensive reorganization of the school grounds, providing separate vehicular access for cars and buses, and upgraded playfields.



## ● Neighborhood School to Expand

Having completed several successful projects together in recent years, the Southern York County School District retained EI Associates to update their District Wide Feasibility Study and review the increasing enrollment in the Elementary grades. After studying this enrollment and the District's existing facilities, EI Associates worked with the District to develop options to meet their immediate and future needs. This resulted in proposing additions and alterations to Friendship Elementary School while maintaining enrollment at the District's other Elementary buildings.

The District has decided to develop this project to achieve a minimum of LEED Silver Certification, intending for the School to serve as an example within the School District as well as for the community. Located near Glenn Rock, PA in a suburban setting intermixed with agricultural land, the Friendship Elementary School is a neighborhood school and is a focal point for the community it serves. As a result, the primary focus for the proposed 26,800 square foot addition, including expanded core facilities and classroom space, will not only support the educational needs of the building but also will be designed to provide space for community activities.

By focusing on designing to meet a minimum of LEED Silver Certification, the Southern York County School District will have a school which will reduce and conserve dependence on energy and other natural resources, and in the process it will serve as a teaching tool to its students. This newly renovated school will be efficient and cost effective to operate, provide an enhanced educational environment, and stand as an example of the District's dedication and responsibility to its students as well as the community it serves.



*Site Plan Rendering for the expansion of Friendship Elementary School*

## ● Jefferson Township Updates Facilities

In an effort to meet their revised curriculum content standards in Family, Consumer and Life Skills, EI Associates collaborated with the Jefferson Township School District to provide new, state of the art Family, Consumer and Life Science classrooms at both Jefferson Township Middle School and Jefferson Township High School. The project involved a total gut renovation of the outdated Home Economics rooms in both schools. All mechanical, plumbing and electrical systems were replaced. In addition, all casework, equipment, appliances and finishes were totally replaced.

In keeping with the state mandate that all students need to develop consumer, family and life skills necessary to be a functioning member of society, and that all students will develop original thoughts and ideas, think creatively, develop habits of inquiry and take intellectual and performance risks; additional technology applications were also included in the design of the renovated rooms.



*Renovated Middle/High School Life Science Labs*



*Architects rendering of the new biomass heating facility*

## ● New Biomass Fueled Heating System

The Penns Valley Area School District, in conjunction with Penn State University, began investigating the viability of a biomass fueled heating system to serve facilities in the fall of 2008. The District toured several biomass-fueled facilities to observe systems in operation and develop an understanding of how this type of system would benefit its own facilities. Local wood chip producers were also contacted by the District to review this potential fuel source, as well as to insure the sustainability of this fuel into the future. It was determined that the utilization of this local, sustainable wood fuel source would reduce the District's current use and expenditure for electric and fossil fuel for heating. The District also received grant funding from the Pennsylvania Energy Development Authority and the ACE Grant to assist in financing the project.

Penns Valley School District retained EI Associates to design and develop the biomass heating facility to support two of its largest school buildings. This proposed biomass heating facility has been centrally located between the three school buildings to maximize efficiency. The new 4,500 sf building houses the locally-manufactured biofuel boiler unit and fuel delivery system, as well as the indigenous biomass fuel sources in an internal fuel storage area. The design incorporates features to encourage the students to learn about the new system and its components. Features such as large viewing areas into the fuel storage and delivery system area, as well as open, accessible circulation around the biofuel boiler unit itself, were incorporated into the overall design. The Penns Valley School District anticipates a payback of 7-8 years, achieved by the savings from their reduction in electricity and fossil fuel usage.

Groundbreaking was held for the project on September 9, 2010, and construction is expected to finish in May 2011.

## ● Indoor Air Quality and Student Performance

During the past 25 years numerous studies have been conducted to determine how factors such as HVAC and thermal comfort, lighting, acoustics, building age and condition, as well as school and class size affect student achievement. Researchers have concluded that students who attend overcrowded schools or schools which have environmental issues related to noise or deficient heating, ventilation and lighting systems perform at significantly lower levels than students who attend suitable learning environments. Unfortunately, recent studies have also concluded that a majority of America's students attend schools that have significant physical deficiencies.

In 1999, the National Center for Educational Statistics of the Department of Education ranked Indoor Air Quality (IAQ) as one of the top environmental risks to public health and stated that 1 in 5 schools in the United States had unsatisfactory indoor air quality. Outdated heating and ventilation equipment, and poor indoor/outdoor air exchange are major factors for this problem. Schools also contain an abundance of pollution sources such as chemicals for science labs, cleaning supplies, chalk dust and even mold which create an even more serious IAQ concern.

In addition to triggering respiratory problems in students and teachers, poor IAQ can cause drowsiness, concentration problems, overall lack of focus and significant loss in instructional time due to absence. The Environmental Protection Agency reports that asthma is the leading cause of school absenteeism accounting for approximately 10 million missed school days/year. The American Lung Association states that asthma is the leading cause for school illness. Poor IAQ can be an indicator of inefficient and substandard HVAC equipment and can have an impact on how the community perceives the school, generate negative publicity and possibly lead to costly liability issues.

School officials should be cognizant of the state and federal guidelines involving indoor air quality monitoring and should incorporate building and district guidelines such as the Walkthrough Inspection Checklist from the Indoor Air Quality (IAQ) Tools for Schools Program from the Environmental Protection Agency. Copies of this and other checklists, which serve as a proactive measure in addressing IAQ issues, can be found on EI's website.



*Summerfield Elementary School under floor air distribution system*



## ● District Highlights Wellness and Nutrition

The new Health and Physical Science Addition at the Pequea Valley High School is going to be a state of the art space where the importance of physical fitness, wellness and nutrition is highlighted for students and the community.

The addition consists of a large two story athletic corridor which provides a new entrance to the existing gymnasium. The addition will feature a new 4,300 sf life fitness room with expansive windows facing south and west. The space is filled with cardio and strength training equipment, as well as media equipment. Included in the design are a new concession area, an area for trophy display cases, and a new event ticketing office.



*Interior rendering of new corridor between the existing gymnasium and the new fitness area*

The fitness area includes a dedicated classroom for health and physical science classes, a locker room and training room. In addition to the classroom space, a series of fitness center support offices are provided and include a new Athletic Director Office, Coaches Office and Trainer Office.

El Associates also designed alterations to the existing weight room, training room, and gym storage spaces which are being re-positioned to support athletic events for both the public and the students. The upper portion of the existing area is now being used as storage space for the gymnasium.

## ● Mechanical Upgrades at Union County College

Union County College retained El Associates to design a new air conditioning system for the Roy W. Smith Theater and Gymnasium Building. The existing equipment was past its useful life expectancy, creating extreme negative pressure conditions between the theater and the surrounding spaces and required immediate replacement.

The Gymnasium is presently not air-conditioned. El investigated several options to provide comfort cooling of the Gym. Since the Gym and Theater portions of the building are not occupied at the same time, El's design provides air conditioning to both the Gym and Theater areas from a single unit. This single unit approach, which incorporates an air-side energy recovery system, provided the College with an economical solution to provide comfort cooling to two large assembly areas.

El's scope of services included an evaluation of the existing systems and equipment, load analysis to "Right Size" the new equipment, energy analysis of various engineering alternatives and registering the project for NJ Green Energy rebates. Engineering alternatives were based on a single or multiple units to serve the areas, structural considerations of the area, energy conservation due to highly variable occupant loading and the general HVAC considerations between theaters and gyms. Construction completion of the mechanical system improvements is scheduled for October 2010.



*Roy W. Smith Theater & Gymnasium Building*



# Holistic Facility Assessments - Beyond Bricks and Mortar

Recent challenges in providing ample school financial support through the loss of district reserves and surplus accounts, coupled with historical cuts in state aid, have had a dramatic impact on school district planning and priorities. Art, music, library, physical education and enrichment programs, once considered vital core programs, are being eliminated in ever increasing numbers. Some Districts are considering closing schools and increasing class sizes to survive in these difficult economic times. Capital projects designed to upgrade aging, unsafe and energy inefficient school facilities have had to be delayed or eliminated from District planning in spite of a recent U.S. Department of Education report indicating that 33% of our nation's schools are in need of extensive repairs or replacement, 50% have at least one unsatisfactory environmental condition, and that a majority of our schools have inefficient mechanical and electrical systems, leaking roofs and inadequate windows and security systems.

To better prepare school districts to deal with the current economic conditions and position themselves in a proactive and measured manner, a new paradigm to address short and long term facility planning is needed. Traditional "Bricks and Mortar" facility assessments which focus on physical condition evaluations should be replaced by more comprehensive methods to also address instructional goals and provide a strategic roadmap to implement required improvements over an extended period. Such "holistic" information assists districts in forecasting and prioritizing needs, phasing work in relation to available funds, reducing unplanned "emergency" improvements and will afford districts precious time to identify alternate funding sources.

EI's holistic approach to Facility Assessment Studies includes a thorough examination of the building envelope, utility systems and site analysis as well as a comprehensive examination of current and future program goals. This global assessment process, as well as strategies to finance capital projects in these difficult economic times, will be addressed at this year's Fall Conference at Session 10 entitled,

**Beyond Bricks & Mortar: Knowing Your Buildings and Keeping Them Healthy and Productive**, scheduled for Tuesday, Oct.19 from 10:30 a.m. - 12:00 noon at the Davidson Room in the Holiday Inn. Members of EI's staff and Louis J. Pepe, RSBA, School Business Administrator from the Summit Public Schools, will present this informative and timely program for school officials.

## News, Notes & Events

### USGBC LEED®

#### LEED® Gold Certified

Newport SD, PA – Pennsylvania's 1st LEED® Gold Certified Middle/High School  
School District of the City of York, PA – Pennsylvania's 1st LEED Gold  
District Administration Office

Pequea Valley SD, PA – Paradise Elementary School  
Selinsgrove Area SD, PA – Selinsgrove Area Elementary School

#### Seeking LEED® Platinum Certification

School District of the City of York, PA – Arthur W. Ferguson Elementary School

#### Seeking LEED® Silver Certification

Bedford Area SD, PA – Bedford Middle School  
Exeter Township SD, PA – Owatin Creek Elementary School  
Lower Dauphin SD, PA – Conewago Elementary School  
PSEG, NJ – Linden Administration Building (LEED-EB)

School District of the City of York, PA –  
McKinley & Davis Elementary Schools & Lindbergh Avenue Educational School  
Selinsgrove Area SD, PA – Selinsgrove Area High School

### NEW PROJECTS

- Cranbury SD, NJ – Facility Assessment & Mechanical System Upgrades
- Greencastle-Antrim SD, Middle School/High School – Alterations/Additions
- Hasbrouck Heights SD, NJ – On-going Roof Replacements
- Pequea Valley SD, Pequea Valley High School, Health & Physical Science Addition
- Southern York County SD, Friendship Elementary School, Alteration/Additions
- Summit BOE, NJ – On-going ROD1, 2 & 3 Window, Door & Boiler Replacement
- Tewksbury BOE, NJ – On-going Mechanical System Upgrades & Renovations
- West Amwell/Lambertville BOE, NJ – On-going Roof Replacement, ADA Toilet Room, Playground & Temporary Classrooms

### EVENTS

- PSBA School Leadership Conference, Hershey, PA: October 12-15  
- Visit us at booth 326/328
- NJSBA Fall Workshop 2010, Somerset, NJ: October 19-20  
- Visit us at our Booth #332/334  
- EI staff will be presenting Session 10, "Beyond Boilers & Mortar – Knowing Your Buildings and Keeping Them Healthy and Productive": Tuesday, October 19, 10:30 a.m. to 12:00 noon at the Davidson Room in the Holiday Inn.
- PASBO Annual Conference & Exhibits, Pittsburgh, PA: March 2011  
- Visit us at our booth



For additional information  
on our services visit our website  
[www.eiassociates.com](http://www.eiassociates.com)  
or contact:

8 Ridgedale Ave  
Cedar Knolls, NJ 07927

☎ 973.775.7777

☎ 973.775.7770

✉ [joseph\\_donnelly@eiassociates.com](mailto:joseph_donnelly@eiassociates.com)

2001 North Front Street, Bldg 3  
Harrisburg, PA 17102

☎ 717.233.4556

☎ 717.236.8256

✉ [lshiley@eiassoc.com](mailto:lshiley@eiassoc.com)