

NOVEMBER • DECEMBER 2005

VOLUME XXII NUMBER 6



REPORTER

The Magazine of the Pennsylvania Society of Professional Engineers



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The *PE Reporter* is published six times annually by the Pennsylvania Society of Professional Engineers (PSPE) located at 908 N. Second Street, Harrisburg, PA 17102. Phone: (717)441-6051 • www.pspe.org. Opinions expressed by authors herein do not necessarily reflect the opinion of PSPE.

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As a Professional Engineer, I dedicate my professional knowledge and skill to the advancement and betterment of human welfare. I pledge:

To give the utmost of performance;

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To place service before profit, the honor and standing of the profession before personal advantage, and the public welfare above all other considerations.

In humility and with need for Divine Guidance, I make this pledge.

Adopted by National Society of Professional Engineers, June 1954

Table of Contents

Columns

On Capitol Hill	5
Risky Business	9
Political Action Committee Sponsor Update	19
Classified	20
Cover Story	22

Features

The Benefit of Student Field Trips	2
You May Qualify as an NSPE Fellow	10
Green Roofs - A Technology Who's Time Has Come	11
2006-07 PSPE Nominating Committee Report	12
Thank You	24

Advertisers

Barton Associates	8
Boles, Smyth Associates, Inc.	8
Buchart-Horn, Inc.	6
Burns Engineering Inc.	6
C.S. Davidson, Inc.	6
Carroll Engineering Corp.	8
Cayuga Concrete Pipe	C2
Cumberland Geotechnical Consultants, Inc.	8
Engineering Mechanics, Inc.	6
Fenner & Esler Insurance	2
F.T. Kitlinski & Associates	8
GAI Consultants Inc.	6
Gannett Fleming	4
Garvin Boward Engineering	8
Johnston Construction Company	6
Keddal Aerial Mapping	4
L. Robert Kimball & Associates	6
MBNA	C3
McMahon Associates, Inc.	8
Michael Baker Corporation	4
Modjeski & Masters Inc.	4
New Enterprise Stone & Lime Co. Inc.	4
Pickering, Corts & Summerson Inc.	8
Powell Trachtman Logan Carrle & Lombardo	2
Senate Engineering Company	6
Tantala Associates	4
UPS	C4

Cover Photo

Due to the harsh Pocono region winters and heavy truck traffic, the Interstate I-80 and I-380 interchange became a maintenance problem for PennDOT Engineering District 5-0. This section of Interstate was originally constructed in 1964 and reconstructed in 1983 using various pavement designs for the existing conditions. In 2004, Pennsylvania Department of Transportation (PennDOT) Engineering District 5-0 undertook one of their first design-build projects, which involved the interchange of Interstates 80 and 380 interchange in Monroe County. See page 22 for more details.

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The Benefit of Student Field Trips

*Beverly W. Withiam, P.E., Interim Director, Engineering Technology
University of Pittsburgh at Johnstown*

Field trip experiences provide an excellent way for students to see firsthand topics they study in classrooms. The purpose of this article is to relate the student benefits that I have observed for one particular course and to encourage all engineers in Pennsylvania to help facilitate field trips. Senior Civil Engineering Technology students at the University of Pittsburgh at Johnstown (UPJ) may select CET 1142, Water Supply and Wastewater, as one of their technical elective courses. Students enrolled in this class typically go on six or seven field trips during the term. About half of the field trips are to water treatment plants and the other half to wastewater treatment plants. Most students enrolled in this class have never been to a treatment plant before going on the field trips.

Because some students are more apt to learn by observing rather than reading, the field trip experience provides a means of enhancing and expanding the learning experience. By the end of the term, students find that they have learned more than the technical aspects of the treatment plants; they have also learned additional skills that will benefit them in their future jobs.

For each field trip experience, students are required to take notes, make sketches and ask questions. Because these students are seniors, they are experienced in-class note takers, but most have not been required to take notes outdoors.

They learn to hold on to a piece of paper in all types of weather conditions and to go to a site with an adequate writing surface and writing instrument. They also learn that gloves and hats are needed in cold weather, even though they may not be fashionable.

Students are required to make flow diagrams depicting the flow of water and

solids at each plant. These sketches reinforce textbook diagrams and point out similarities and differences of the plants. If a plant tour is not conducted in a way that follows the flow paths, students have to be able to put the operations into proper order. By seeing the actual unit operations and processes, students gain an understanding of the size of the footprint required for water and wastewater treatment plants. They start to appreciate the planning that must precede the number crunching. They gain a better grasp of the need to be able to expand a plant, but still keep it operationally manageable.

Prior to the field trip, students are given a list of questions that they must later be able to answer and write about. This aspect of the experience teaches the students how to conduct interviews, to confirm facts, to identify the person that they are talking with, and to follow-up with additional questions if needed.



ask the plant operators to tell them about problems they have encountered in day-to-day operations or during emergency situations. I encourage this interaction because the students learn a great deal from the ingenuity and know-how of the operators. A graduate working at a consulting firm that designs water and wastewater treatment

plants will recall the conversations that occurred during the field trips and hopefully incorporate some of what they learned.



Frequently students must learn to overcome two fears: the fear of asking a stranger a question and the fear of appearing foolish. These fears are always alleviated once the students realize that the people conducting

the tours like to talk about their jobs and that no question is considered silly.

By the time students go on their last field trip of the term, they know what to expect and are much better prepared. They gain the confidence to ask questions and sometimes even divide the questions among themselves to make the interview flow more smoothly. They also have honed their writing skills and discern what needs to be incorporated into a plant description.

I am grateful to the people in the Cambria and Somerset County areas that have supported the UPJ field trip effort for more than twenty years. The type of experiences that I have described here can only occur if someone takes the time to accommodate the field trips. Practicing engineers, water and wastewater authority employees and plant operators all contribute to the educational experience when they get involved. ■

Beverly W. Withiam, P.E. has been teaching in the Engineering Technology Division of the University of Pittsburgh at Johnstown since 1982. UPJ offers four year Bachelor of Science degrees in Civil, Electrical and Mechanical Engineering Technology. Ms. Withiam is a member of PSPE, ASCE, ASEE, AWWA, and WEF. Contact information: 225 E&S Building, 450 Schoolhouse Road, Johnstown, PA 15904. Phone: 814.269.7263. Email: bev@pitt.edu

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On Capitol Hill

John D. Wanner, CAE

Special Session on Property Tax Reform Begins

Governor Ed Rendell called for a Special Session of the General Assembly to focus attention on, and finally enact, real property tax reform in the continued absence of slots revenue, and heated debate over the implementation of Act 72. Myriad plans from various legislators have been introduced, Rendell and House Democrats, among others, looking to work on amendments to Act 72, the remaining members of the "Commonwealth Caucus" continuing to tout their expanded Sales tax plan, and others, like several members of the Lehigh Valley delegation, trying to simplify the existing structure.

In the simmering aftermath of the pay raise vote, most legislators believe they are compelled to do something to take home to the voters this fall, and property taxes and minimum wage seem to be two imperative issues, along with increasing benefits for members of the National Guard and their families who are serving abroad. The fall of the odd-numbered years is usually a fairly inactive time, but it seems likely that this year will be different.

Legislation introduced to eliminate Best Value Contracting

Representative Scott Petri (R, Bucks Co.) has introduced legislation, House Bill 1996, which would prohibit the use of Best Value Contracting. The bill simply strikes "construction" from the list of services that the Commonwealth can procure through the "competitive sealed proposal" process. That process is another term for Best Value Contracting. The PA Department of General Services (DGS) recently awarded its first project using Best Value instead of low bid, construction of a new student union building at Cheyney State University. Of interest in that award is that the 4 contractors chosen as the "Best Value"

winners were also the low bidders. Under the DGS system, price is worth 60% of the points.

Shortly after the award, the Associated Builders and Contractors (ABC) sued the Commonwealth, claiming that its Best Value system is illegal. ABC has been claiming that the DGS system will favor union contractors. Ironically, of the four contractors selected on the Cheyney project, two are union and two are non-union. State Government insiders give neither the bill nor the lawsuit much chance of success.

Rep. Evans Introduces Payment Bill for Philly Work

Rep. Dwight Evans of Philadelphia introduced a bill that would require that all contractors be paid before a certificate of occupancy can be issued. House Bill 1878 amends the Pennsylvania Construction Code by adding that in cities of the first class (Philadelphia) a certificate of occupancy for a commercial building or structure may not be issued by a construction code official or a municipal code official until the owner provides certification that all retainage for contractors, subcontractors and materials suppliers, that performed work or supplied materials for the building or structure, has been paid.

This does not apply to any of the following: (1) amounts necessary to ensure completion of incomplete work, (2) amounts necessary to insure performance of work which is noted in a written list provided to the owner specifying deficiencies yet to be corrected, and (2) amounts necessary to compensate for undelivered, defective or otherwise inadequate supplies. A construction code official or a municipal code official may issue a certificate of occupancy if the owner can demonstrate that disputed amounts are in an escrow account awaiting the determination of a

legal proceeding. The bill was referred to the House Labor Relations committee.

Legislative Activity

HB 469 RE: Destruction of Survey Monuments (by Rep. Sue Cornell, et al)

Amends Title 18 (Crimes and Offenses) making it a summary offense to intentionally cut, injure, damage, destroy, deface or remove any survey monument or marker and a misdemeanor of the second degree to willfully or maliciously cut, injure, etc. a survey monument or marker in order to call into question a boundary line. Violators would be liable for the cost of the re-establishment of permanent survey monuments or markers by a professional land surveyor and all reasonable attorney fees.

Reported as committed from House Judiciary Committee, read first time, and laid on the table, 9/27/2005

HB 609 RE: Student Residence Automatic Fire Suppression System Installation Loan Program and Protection Act (by Rep. Paul Semmel, et al)

Would create the Sprinkler Loan Fund. The Department of Community and Economic Development would administer the loan program utilizing moneys from the fund for the purpose of providing low-interest loans to owners of student residences to install automatic fire suppression systems. Loans under this program would only be utilized to fund the installation of automatic fire suppression systems in preexisting buildings. A loan issued under this program would be subject to the following terms and conditions: (1) The loan would be subject to an interest rate of 2%, (2) The loan would be repaid within 15 years of the date of the loan, (3) Any other terms and conditions as promulgated by the department.

"Capitol" continued p. 7

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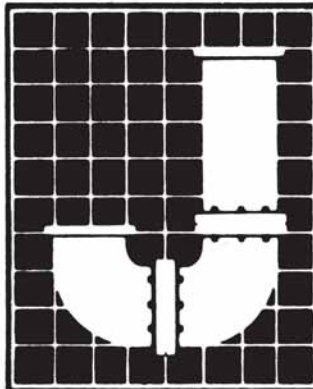
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"Capitol" continued from p. 5

Reported as committed from House Veterans Affairs/Emergency Preparedness Committee, read first time, and laid on the table, 9/26/2005

HB 1467 RE: Residential Construction Dispute Resolution Act

Establishes dispute resolution procedures relating to residential construction defects between contractors and homeowners or members of associations. In an action under the legislation, the claimant must notify the contractor of a claim at least 75 days before initiating action. The contractor would have 15 days to respond. The legislation would not apply to any claim for personal injury or death.

**Reported as committed from House Rules Committee, and laid on the table, 9/26/2005
Removed from the table, read second time, and rereferred to House Appropriations Committee, 9/27/2005**

Reported as committed from House Appropriations Committee, 10/17/2005

HB 1637 RE: Mechanics' Lien Law (by Rep. George Kenney, et al)

Amends the Mechanics' Lien Law by stating that only a contractor (not a subcontractor) may waive his right to file a claim by a written instrument signed by him or by any conduct which operates equitably to prevent the contractor from filing a claim.

**Reported as committed from House Rules Committee, and laid on the table, 9/26/2005
Removed from the table, read second time, and rereferred to House Appropriations Committee, 10/17/2005**

HB 1920 RE: Sales Tax (by Rep. Sam Rohrer, et al)

Amends Tax Reform Code further providing for the imposition and rate of the sales and use tax and for transfers to the Public Transportation Assistance Fund; designating certain sales and use tax revenue for transfer to the Education Operating Fund; and increases the rate of the State Real Estate Transfer Tax to 2% (from 1%) and requires moneys raised by

the Local Real Estate Transfer Tax to be deposited in the Educational Operating Fund. The bill states it is the intent of the General Assembly to broaden the sales and use tax base and reduce the rate of that tax in order to provide funds for the operating expenses of school districts.

The legislation adds that "sale at retail" includes wearing apparel or shoes; and the rendition for a consideration of any service, other than a medical service, when the primary objective of the purchaser is the receipt of any benefit of the service performed, as distinguished from the receipt of property. States that any service performed in PA would be subject to taxation under this article unless specifically exempted. "Use" would also include wearing apparel or shoes.

The sales and use tax is reduced to 5% from 6% and provides for the computation of the tax. Revenues from the tax would be deposited into the Education Operating Fund. The legislation also extensively provides for exclusions.

The following items are added to the list of those items excluded from the sales and use tax: medical goods and services by a hospital; dental services; goods or services involving Medicare Part B transactions; transportation provided or funded by the federal, state or local government; insurance premiums; mortgages; investments or gains on investments; rental of real property; and the sale of property to schools.

The following items are removed from the list of those items excluded from the sales and use tax: diapers, sanitary napkins, etc.; steam, natural gas, fuel oil, electricity, etc.; packing materials such as wrapping paper, twine, tape and cartons; vessels designed for commercial use of registered tonnage of 50 tons or more when produced by the builders thereof upon special order of the purchaser; or tangible personal property or services used or consumed in building/repairing, cleaning/maintaining such vessels; medical supplies, such as crutches, wheelchairs, false teeth; coal; motor vehicles, semis, & trailers ; water;

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The legislation also re-allocates the percentages of transfers to Public Transportation Assistance Fund and states no more than \$75 million total may be deposited in the fund in any one fiscal year.

Reported as committed from House Rules Committee, read first time, and laid on the table, 9/27/2005

SB 656 RE: Residential Construction Dispute Resolution Act (by Sen. John Gordner, et al)

Provides procedures relating to dispute resolution for residential construction defects between contractors and homeowners or members of associations. The bill states that a claimant would, no later than 75 days before initiating an action against a contractor, provide service of written notice of claim on the contractor. An association may bring an action against a contractor to recover damages resulting from construction defects in any of the common elements or limited common elements of a common interest community. The bill states that upon entering into a contract to construct a dwelling, the contractor would give the owner or buyer a written notice concerning construction defects. Failure to include the notice would deprive the contractor of the benefits of this act.

"Capitol" continued p. 18

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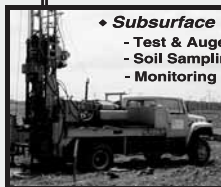
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Part III: The Horseshoe Curve

By 1854 in the United States, railroad transportation was the answer. The question? How to ensure that Pennsylvania could divert/channel/profit from the massive flow of raw goods from west to east and finished goods from east to west with the greatest efficiency (economic and chronological) and the least risk.

Hundreds of miles of canals were under construction across the eastern United States. Each of these canals represented competition for Pennsylvania commerce and development. Key competitors were the Morris Canal in New Jersey, the Chesapeake and Ohio Canal in Maryland, the Erie Canal in New York, and the Ohio and Erie Canal in Ohio. Clearly, Pennsylvania needed to take action to seize back its market share.

The challenge

In 1839, the Commonwealth commissioned Col. Charles L. Schlatter, an engineer, to survey a direct route without the inclined planes of the Allegheny Portage Railroad. He proposed three alternative routes, one to the north, one to the south, and one in the middle. The Commonwealth

took no action on any of the routes.

In 1847, J. Edgar Thompson was appointed chief engineer of the Pennsylvania Railroad. He resurveyed and improved the middle route, following the

valley of the Juniata River. This valley provided a good, level route to the foot of the Alleghenies, where the PRR would build the city of Altoona.

The maximum that the locomotives of the day could handle was 1.8%. The challenge was to find a route through the Allegheny Mountains that wouldn't exceed a grade of 1.8%. The surveyors had already determined that they would have to tunnel through a mountain near Gallitzin. They found ridges heading from Gallitzin back toward Altoona. They found ridges leading out of Altoona. Unfortunately, about five and a half miles west of Altoona, these promising paths were divided by the Kittanning Run Ravine and the Burgoon's Run Ravine. To connect the two paths, a crow would fly a 1.2 mile path with a 4.37% grade. Obviously there were only two potential solutions: decrease the numerator or increase the denominator to reduce the grade below 1.8%.

The engineering solution

The solution was radical: Build huge fills across both ravines and cut a notch in the face of the mountain in between. By building this "detour," the distance would be increased to 3 miles, and the average grade reduced to 1.73% on the western fill, 1.45% on the notch, and 1.75% on the eastern fill. All these grades were workable. The new, proposed track path would form a giant horseshoe across the two ravines.

Gathering the volume of soil necessary to construct the two fills would leave a large divot in the valley. The divot would become a pair of reservoirs. The extraordinary motive loads of achieving these extreme grades would cause the locomotives to run hard and hot. The reservoirs would make certain that adequate water was available to keep the engines safely cool.



Horseshoe Curve

Muscling through

To the best of our knowledge, there were no engineering problems solved with clever, fascinating solutions. This was a problem of brute force. There were no bulldozers, no steam shovels, no backhoes. This amazing work was accomplished by 450 Irish mine workers imported from Counties Antrim, Cork, and Mayo. The work was accomplished using only hand drills, black powder, picks, shovels, and wheelbarrows. Apparently, though, the men didn't burn off enough energy. There were many strikes and brawls.

There were interesting cultural consequences. Because much of the labor was supplied by Irish immigrants, the result was one of the first Roman Catholic communities of significance in the western United States (as it was then defined). Altoona still shows face of its religious diversity.

The Horseshoe Curve opened for traffic on February 15, 1854. There are those who would argue that the Horseshoe Curve is the American version of the Egyptian pyramids. Many periodicals of that day and since referred to the Horseshoe Curve as the Eighth Wonder of the Modern World.

Empire Builders

Although the National Road (in its first incarnation) and the Allegheny Portage
"Risky" continued p. 23



J. Edgar Thompson

You May Qualify as an NSPE Fellow

PSPE in conjunction with NSPE is again seeking nominations for the Fellow membership grade to honor a select group of individuals for special recognition.

Download the nomination form from the NSPE website at www.nspe.org/aboutnspe/ab1-fellow.asp. Send your completed application to PSPE by January 9, 2006. The PSPE Council of Fellows will review nominations for recommendation to the NSPE Council of Fellows Executive Committee, chaired by Past President Monte Phillips, P.E., F.NSPE.

If you have questions regarding nominations, please contact Sara Clark at NSPE headquarters (703/684-2804, sclark@nspe.org).

We look forward to receiving your nomination and recognizing you.

Fellow Member Application Guidelines

- The NSPE Board of Directors established the Fellow recognition program to honor those licensed members who have demonstrated exemplary service to the profession, the Society, and the community. Service should include contributions in the national arena, such as prominent participation in NSPE and its state societies. Prominent participation in other nationally recognized engineering societies will also be considered. (See also "Notes on Completing the Application" at end.)
- Nominations must be submitted to the NSPE selection committee through a state society of NSPE, or through a member of the NSPE Board of Directors with NSPE Board endorsement.
- Each state society is allowed to make one nomination for each 1,000 voting members on its rolls rounded to the next higher number of nominations. Each state is allowed at least one nomination per year. State societies are allowed to submit more nominations in any one year than the single year limit, provided that the total number of nominations does not exceed the sum of the yearly limit for the current year plus any unused nominations from the previous year. Nominations have a life of one year. Persons not selected for Fellow

in a particular year may be re-nominated in subsequent years. Each subsequent nomination will count as a new nomination.

- State society nominations must be accompanied by at least three letters of recommendation from NSPE members familiar with the nominee's qualifications. One of the letters of recommendation must be from the president of the nominee's state society stating that the recommendation has been approved by the state society board of directors. In addition, one of the letters of recommendation must be from a current NSPE Fellow.
- Nominations from state societies will be accepted by the Council of Fellows Executive Committee until February 1 each year.
- The NSPE Board of Directors votes final approval of those nominees recommended for Fellow grade status by the NSPE selection committee.

Completing the Application

- The key to providing a successful application is for the submitting state to take ownership and "add value" in presenting the accomplishments of the candidate. Merely listing activities without showing the significance of the accomplishments may leave the selection committee with insufficient information for a positive response.
- Fellows must show prominent accomplishment in all three of the criteria established by the Board: the engineering profession, the Society, and the community. A lack in one or another area can lessen a candidate's chance.
- Since Fellow status may be recognition of more than NSPE activities, consideration of national engineering accomplishment and activity are important, i.e., either with NSPE or with other engineering societies.
- Remember that the selection committee does not generally know the candidates. The committee can judge the candidate only by the strength and completeness of the application.

NSPE Fellow Members - Pennsylvania

John R. Ackerman PE, PG, DEE, FNSPE
Luzerne County

John W. Fisher PE, FNSPE
Lehigh Valley

Barry E. Isett PE, FNSPE
Lehigh Valley

Leonard K. Bernstein PE, FNSPE
Philadelphia

Ernest U. Gingrich PE, PLS, FNSPE
Harrisburg

Walter K. Morris PE, FNSPE
Harrisburg

William J. Bryan PE, FNSPE
Washington

Harvey D. Hnatiuk PE, FNSPE
Valley Forge

Sidney J. Myers PE, FNSPE
Harrisburg

Elizabeth A. Catania PE, FNSPE
Delaware County

John G. Woods PE, FNSPE
Philadelphia

Green Roofs - A Technology Who's Time Has Come

Carl DuPoldt, PE - Delco Chapter PSPE

With rising fuel costs and the new storm water regulations, green roof technology poses a feasible solution to commercial, institutional and industrial roofing needs. In Germany, there are over 100 million square feet of green roofs installed as of 2001.

Green roofs are vegetated roof covers that help to manage stormwater, improve water and air quality, mitigate heat and reduce energy costs. Green roofs lengthen the service life of the roof and provide for wildlife habitat.

The American Society of Testing Materials (ASTM) has formed a work group to establish a Green Roof Standard. Three standards are under development, namely, guide for selection, installation and

maintenance of plants for green roof systems; guide for use of expanded shale, clay or slate (ESCS) as a mineral component in growing media for green roof systems; and, standard practice for the assessment of green roofs.

Green roofs can be intensive or extensive depending on the planted usage of the roof.

Intensive green roofs require intense maintenance and are often park-like areas that are accessible to the public. The installation costs range from \$25 to \$40 per square foot.

Extensive green roofs are limited to herbs, drought resistant grasses, succulents and mosses. The installation costs range from \$14 to \$25 per square foot.

Extensive green roofs are the single most effective solution to stormwater

management. They act like a sponge during rain events by helping to filter pollutants and slow the discharge of stormwater, which limits the effects of flooding and erosion downstream. It has been estimated that approximately 75% of the pollutants are absorbed in a 3 to 5 inch growing medium.

Additional resources for green roofs:

<http://www.greenroofs.org>

<http://www.usgbc.org>

<http://www.astm.org>

<http://www.epa.gov/owow/nps>

<http://www.eltgreenroofs.com>

<http://www.hrt.msu.edu/greenroof>

<http://www.city.waterloo.on.ca>

<http://www.roofmeadow.com> ■

Green Roof Awards of Excellence

Green Roofs for Healthy Cities established the Green Roof Awards of Excellence in 2003 to recognize green roof projects which exhibit extraordinary leadership in integrated design and implementation. The awards also increase general awareness of green roof infrastructure and its associated public and private benefits, while recognizing the valuable contributions of green roof design professionals. Below are two winners from the 2005 awards.

Award Category: Extensive Industrial/Commercial



Project: Heinz 57 Center, Pittsburgh, Pennsylvania. Photo courtesy of Green Roofs for Healthy Cities (www.greenroofs.org) and Award Winner, Roofscapes, Inc., Philadelphia, Pennsylvania. Architect: Burt Hill Kosar Rittelmann Associates.

Category: Intensive Residential



Project: North Beach Place, San Francisco, California. Photo courtesy of Green Roofs for Healthy Cities (www.greenroofs.org) and Award Winner, Cathy Garrett, Principal, PGAdesigninc Landscape Architects, Oakland, California. Structural Engineer: Amir Kazemi, FBA Structural Engineers.

2006-07 PSPE Nominating Committee Report

Ernest U. Gingrich, P.E., PLS, Committee Chair

In late summer, all chapters were asked to submit names for consideration to the Nominating Committee for state officers for the upcoming year. The Nominating Committee, comprised of one State Director from each region, included:

Ben Thayer, P.E. (Beaver Chapter, Northwest Region)
Bob Davis, P.E. (Central Chapter, Central Region)
Eric Tappert, P.E. (Lehigh Valley Chapter, Northeast Region)
Dave Briskey, P.E. (Pittsburgh Chapter, Southwest Region)
Mike Moore, P.E. (Valley Forge Chapter, Southeast Region)

The nominating committee submits the following slate of nominees to PSPE for 2006-2007. A copy of each candidate's biography appears on the following pages.

President Elect: Leonard Bernstein, P.E.
Secretary: Joseph Boward, P.E.
Treasurer: John Nawn, P.E.
Vice President Central Region: John Bradshaw, P.E.
Vice President Northeast Region: Walter Poplawski, P.E.
Vice President Northwest Region: David McCullough, P.E.
Vice President Southeast Region: Frank Stanton, P.E. AND Rick Aulenbach, P.E.
Vice President Southwest Region: Michel Sadaka, P.E.

In accordance with PSPE bylaws, members who wish to run for office may do so by petition. Nominations signed by at least 25 PSPE members in good standing, along with a picture and biography of the candidate, must be received by the PSPE Secretary by February 15, 2006. A copy of the petition and accompanying material shall be concurrently delivered to the Chair of the Nominating Committee.

The secretary shall verify the membership validity of the signers and inform the Chair of the findings, and also if in proper order, make the appropriate listing on the ballot.

In the case of more than one nomination for office a ballot will be mailed to the membership by March 1, 2006. On behalf of the nominating committee I congratulate all of the nominees. I also thank the members of the nominating committee and greatly appreciate their help in this process.

*Respectfully Submitted,
Ernest U. Gingrich, P.E.
Chair, Nominating Committee*

PSPE members interested in petitioning to be on the ballot for a PSPE state office, should send nominations to:

PSPE Secretary/Treasurer
Leonard K. Bernstein PE, FNSPE
4140 Orchard Lane
Philadelphia, PA 19154-4418
Phone: (215)824-3570
lenbernsteinpe@yahoo.com

Nominating Committee Chair
Ernest U. Gingrich PE, PLS, FNSPE
103 Centerfield Drive
Harrisburg, PA 17112
Phone: (717)545-7020
eugingrich@aol.com

2006-07 Candidates for PSPE Office

Leonard K. Bernstein, PE, FNSPE **Candidate for President Elect**



Len has been an active member of PSPE since 1981. He has been on the Philadelphia Chapter Board of Directors since 1982 when he was first elected as a Chapter Director. Since 1982, Len has served the Philadelphia Chapter as President twice (1988-89, 1996-97), Vice President, Secretary, Chapter Director, and State Director. He has also served the Philadelphia Chapter by chairing the Ethics, Bylaws, and Awards Committees and as editor of the Chapter newsletter. At the State level, Len has been the PSPE Treasurer since 2001 and PSPE Secretary since 2005, has been a member of the PSPE Constitution and Bylaws Committee for 16 years, serving as Chair for the last ten years. Len served as a member of the PSPE House Bill 1960 Task Force that defeated an attempt by the Pennsylvania Sewage Enforcement Officers to legalize the engineering design of onlot sewage disposal systems by non-licensed designers. At the National level, Len is a member of the Constitution and Bylaws Task Force and has been a member of the NSPE Government Affairs Committee.

In recognition of his service to PSPE, PSPE Past President Craig L. Weaver, P.E., presented Len with the 2000 President's Dedicated Service Award for the countless hours he has dedicated to PSPE. In 2005, Len also received the PSPE Professional Engineers in Government Dedicated Service Award and was named an NSPE Fellow Member.

Len received his Bachelor of Science degree in Civil Engineering from the Polytechnic Institute of Brooklyn (Brooklyn, NY) and his Master of Science degree in Civil and Urban Engineering from the University of Pennsylvania.

Len is a licensed Professional Engineer and Sewage Enforcement Officer in Pennsylvania and is currently the Special Projects Coordinator for the City of Philadelphia's Water Department. Len began with the Water Department in 1976 as a Project Engineer and, five years later, advanced to Chief of the Water Pollution Abatement Program, the City's \$900 million expansion of its three wastewater treatment plants. In heading the Program, Len was responsible for all aspects of the design, procurement, and construction of this federally funded program. In addition to his work with the Water Pollution Abatement Program, for seven years, Len was responsible for developing and tracking the Water Department's annual Capital Budget that was in excess of \$200 million each year as well as the Engineering Division's annual Operating Budget. As Special Projects Coordinator, Len is currently responsible for the planning activities for the Water Department and the City of Philadelphia under the Pennsylvania Sewage Facilities Act (Act 537) and coordinates Water Department activities at the Philadelphia Naval Business Center, a world-class industrial park on the site of the former Philadelphia Naval Ship Yard.

In addition to his primary employment, Len is an Adjunct Associate Professor in the Department of Civil and Environmental Engineering at Temple University in Philadelphia and is active in the Pennsylvania Association of Sewage Enforcement Officers; the American Public Works Association (APWA) where he serves on the American Public Works Association/Institute of Public Works Engineering Australia/INGENIUM (Association for Local Government Engineering, New Zealand) Partnership Task Force, the Legislative Advocacy Task Force and has served on the International Affairs Committee. Len also serves on the APWA Bylaws and Rules Committee, a committee he chaired for two years. Len is the current President of the APWA Southeastern Pennsylvania Chapter and served as Co-Chair

of the APWA 2001 International Public Works Congress and Exposition when it was held in Philadelphia in September 2001. Locally, Len also chairs the Awards Committee and had previously chaired the Bylaws Committee of the Delaware Valley Engineers Week Council.

Beyond his professional activities, Len has been active in his community as a coach and referee for multiple youth sports and is a dedicated member of Our Lady of Calvary parish where he has served on Parish Council for 20 years and is presently a lector and Eucharistic Minister.

Len is a Vietnam era veteran of the U.S. Army where he spent time as an instructor of various engineering subjects at the Non-Commissioned Officer Academy at Ft. Leonard Wood, MO. He lives in Philadelphia with his wife of 33 years, Joan, and has three grown children.

Joseph F. Boward, P.E. **Candidate for Secretary**



Joseph F. Boward graduated from Purdue University in 1984 with a BS degree in Civil Engineering. He majored in Soil Mechanics and minored in Environmental and Structural Engineering.

In 1988 and 1991, he completed the Occupational Safety and Health Administration (OSHA) training and instruction requirements for Waste Site Worker Protection and Waste Site Supervisor, respectively, in compliance with OSHA specifications designation 1910.120(e)(2). In 1989, he completed his requirements as a Professional Engineer (P.E.) and is now licensed in the states of Pennsylvania, West Virginia, Ohio, and Maryland. Also in 1989, he successfully completed educational requirements for Radium and Radon in the Environment at the University of Wisconsin, and the Environmental Site Assessment

"Candidates" continued p. 14

"Candidates" continued from p. 13

course conducted by the National Water Well Association. In 1990, he earned his MS degree in Civil Engineering from the University of Pittsburgh, where he concentrated in Soil Mechanics and minored in hydraulics/hydrology. In 1996, he completed the Environmental Site Assessments course given by the American Society for Testing and Materials (ASTM).

From 1981 to 2003, Mr. Boward was employed by Engineering Mechanics, Inc., as a geotechnical engineer, where he rose to the level of junior partner. From 2003 to 2004, Mr. Boward worked for Michael Baker Jr., Inc., where he was a Senior Engineer, primarily involved with geotechnical investigations and retaining wall designs for the Allegheny County Department of Public Works.

In November 2004, with R. Gary Garvin, P.E., he founded Garvin Boward Engineering, Inc., where he provides consulting geotechnical and forensic engineering services. As a consulting engineer, Mr. Boward specializes in geotechnical engineering and selected components of environmental and forensic engineering.

As a geotechnical engineer, Mr. Boward is concerned with the application of civil engineering technology to aspects of the earth, including the interaction of engineering works with soils and bedrock. Of course, this knowledge is applicable to a broad cross-section of civil engineering works. Mr. Boward has been involved in numerous Phase I and II Environmental Site Assessments over the past 15 years - typically as part of property evaluations and/or transactions - which are performed in accordance with ASTM procedures/standards. As a professional engineer, Mr. Boward is qualified to present testimony on these and related areas of expertise in legal proceedings, which he has numerous times over the years.

Mr. Boward - a member of Chi Epsilon National Civil Engineering Honor Society - was named Young Engineer of the Year in 1992 by the Pittsburgh Chapter, Pennsylvania Society of Professional Engineers, who presented him with its L. W. Hornfeck Award for meritorious service in 1995. In February 2005, Joe was honored to receive the

Dedicated Service Award from the Pittsburgh Chapter, PSPE. He has been and continues to be very active in technical and professional engineering organizations.

Mr. Boward has numerous affiliations in technical organizations including the National Society of Professional Engineers, Pennsylvania Society of Professional Engineers, Pennsylvania Professional Engineers in Private Practice, American Society of Civil Engineers, American Concrete Institute, and American Society of Highway Engineers.

He currently serves as an instructor for the PSPE Professional Engineering Licensing Exam Refresher Course, Geotechnical Engineering Section; PSPE Awards Committee Chairman, is a member of the ASCE Pittsburgh Section Geo-Institute Board, and is a member of the National PEPP Awards Committee.

Mr. Boward has collaborated on a number of publications: J. F. Boward and L.E. Vallejo, "Clay Liner Crack Propagation", Engineered Contaminated Soils and

Interaction of Soil Geomembranes, Proceedings of ASCE National Convention in Washington, DC, November 10-14, 1996, Geotechnical Special Publication No. 59, American Society of Civil Engineers, New York, 1996.

R. G. Garvin and J. F. Boward, "Using Slurry Walls to Protect an Historic Building: A Case Study", Slurry Walls: Design, Construction, and Quality Control, ASTM STP 1129, American Society for Testing and Materials, Philadelphia, PA, 1992.

He is a registered professional engineer in Pennsylvania, Ohio, West Virginia and Maryland.

John A. Nawn, P.E., PTOE Candidate for Treasurer



John has been a member of the NSPE and PSPE for the last 15 years. His service to PSPE has included four years as editor of the Delaware County Chapter Newsletter and three years as the Chapter President. Under John's leadership,

the Delaware County Chapter won the PSPE Outstanding Program Award in 2005. With the NSPE, John has also served as a member of the Critical Infrastructure and Homeland Security Task Force.

Professionally, Mr. Nawn is a Vice President with GAI Consultants and Managing Officer of their Philadelphia Regional office in King of Prussia, PA. With almost 20 years of experience, Mr. Nawn manages a staff of over 20 professionals providing transportation, land development, municipal and traffic engineering and construction management services for a diverse range of public and private clients. Prior to this, Mr. Nawn was the Director of Traffic and Municipal Engineering for URS Corporation and Branch Manager of their Philadelphia office. Mr. Nawn has also been a Project Manager with DMJM+Harris, and was Director of Transportation Engineering for Valley Forge Laboratories, Inc. Mr. Nawn has managed many large traffic, highway and transit projects; most recently, the 50 million dollar extension of the Southeastern Pennsylvania Transportation Authority's R3 Heavy Rail Line from Elwyn to Wawa, PA.

John holds a Bachelor of Science degree in Civil Engineering from Drexel University in Philadelphia, PA and is currently pursuing a Master of Science at Drexel. John is a licensed professional engineer in Pennsylvania, New Jersey, Maryland and Delaware and a Certified Professional Traffic Operations Engineer, one of 1400 such professionals worldwide. Mr. Nawn has been accepted as a traffic-engineering expert in many municipalities and three courts. He designed and managed the installation of the first application of Back In Angle Parking in the Commonwealth of Pennsylvania, which was previously featured in the PSPE PE Reporter.

Besides his service to PSPE, John is a member of the Mid-Atlantic Section of the Institute of Transportation Engineers (ITE) and served as the Section's Newsletter Editor for two years. John is also a member of the American Society of Civil Engineers, the Traffic Club of Philadelphia, the Engineer's Club of Philadelphia and a Diplomate of the American Board of Forensic Engineering and Technology. John is a voting member of the Delaware Valley Regional Planning

Commission's Regional Citizens Committee and is the current Vice Chairman of the Municipal Services Committee of the American Council of Engineering Companies/Pennsylvania. John has also volunteered as a judge at the Delaware Valley Engineers Week, Future Cities competition and the Delaware County Science Fair. John is the co-author of the Access Management Chapter of the soon to be released Urban Geometric Design Handbook to be published by ITE and participated in an Order of the Engineer induction ceremony in April 2005.

In the community, John is an Eagle Scout, very active in the Boy Scout program and is a member of the Cradle of Liberty Council Property Committee. As the Scoutmaster of his local troop, John has helped six boys achieve the Eagle Scout rank with five additional boys actively working for it currently. John is also a Director with the Sharon Hill Historical Society and is managing their efforts to restore the Sharon Hill Train Station. He was instrumental in helping the group obtain a \$342,000 federal Transportation Enhancement grant. Currently, John is the Treasurer of the Malvern Prep Fathers Club. John has served as a member of the Sharon Hill Borough Planning Commission, and as an election day Poll Watcher and Machine Inspector, local political Ward Leader, was a little league baseball coach and serves on the Fourth of July Parade committee. John is a railroad aficionado and is the Convention Chairman for the 2006 National Model Railroad Association Convention, to be held in Philadelphia.

John resides in Newtown Square, PA with Barbara, his wife of 18 years and their two children. Son John is a junior at Malvern Preparatory School and daughter Julie is a freshman at Villa Maria Academy. Barbara is the Physical Education teacher at Our Lady of Fatima School in Secane, PA. John's father and youngest brother are also engineers, electrical and mechanical respectively, with his youngest brother also a licensed professional engineer in Pennsylvania and a PSPE member.

John F. Bradshaw, PE, PLS **Candidate for Central Region Vice President**



John Bradshaw manages the Construction Management Department for Michael Baker Jr. Inc. (a division of Michael Baker Corporation) in its Harrisburg office. John is registered as a Professional Engineer in Pennsylvania and several other states, and also registered as a Professional Land Surveyor in Pennsylvania.

John was born and raised in Schenectady County, NY, and received his Bachelor of Science degree in Construction Technology from LeTourneau University in 1965. Upon graduating, John started his career in engineering at McFarland Johnson Consulting Engineers in Binghamton, NY. Two years later, he continued his engineering career with Michael Baker Jr. Inc. in Harrisburg, PA, where he has worked for 38 years.

John has been mostly involved with transportation projects and some building projects. In his first 20 years with Baker, he worked with the structural engineering group in the design of bridges, stadiums and other types of structures. During the past 18 years, John has been involved with construction management and inspection projects. Some of more significant project involvements were the New River Gorge Bridge in West Virginia, still the longest steel arch bridge in the world; the Alaskan Pipeline support system; the Moundsville and the Huntington Sixth Street Bridges across the Ohio River in West Virginia; the raising and expansion of Beaver Stadium at the main campus of the Pennsylvania State University in State College, PA; the redecking of the Benjamin Franklin Bridge and the rehabilitation of the PATCO rail lines on the Benjamin Franklin Bridge in Philadelphia, PA; and the RAILWORKS project in Philadelphia, a SEPTA rehabilitation of nine-mile track system and structures. Currently, John is managing the construction management support and inspection teams for several PENNDOT major highway construction projects in central Pennsylvania. In addition, John has taken on a new enterprise managing

the design and construction oversight for the Pennsylvania Turnpike's service plaza development project.

John has been actively involved with PSPE since 1977. He has served as State Director, President, Treasurer, Secretary and other offices for the Harrisburg Chapter. In addition, he chaired various chapter committees, including the Engineers Week Committee for several years until the establishment of The Central Pennsylvania Engineers Week Council. John was the driving force behind the creation of the Council, which consists of professional and technical societies that support NSPE's celebration of National Engineers Week in February. John is also an active member of CMAA (Construction Management Association of America) and ASHE (American Society of Highway Engineers).

Besides being active with professional and technical societies, John has been involved with his local church, Bible Baptist Church of Shiremanstown, PA. Some of the church functions in which he served were Deacon, Chairman of Buildings and Grounds Committee, and Sunday school teacher. In 1972, John was instrumental in the planning and establishment of a Christian school in his church, which now has over 600 students from Kindergarten to Grade 12.

Walter J. Poplawski, PE **Candidate for Northeast Region Vice President**



Walter has served PSPE as Northeast Regional Vice-President since 2004-05. He is also a former State Treasurer and the current State Chair of the PSPE Professional Engineers in Private Practice (PEPP).

A member of NSPE/PSPE since 1981, he was Luzerne County Chapter President twice, in 1990-91 and 1997-98. Walter had served as either the Chapter's State Director or the Alternate Director for ten years, 1994-2004. He has been an active participant in all Chapter activities, including chair of the Mathcounts and Engineers' Week committees,
"Candidates" continued p. 16

"Candidates" continued from p. 15

the monthly chapter meeting coordinator, and a variety of other Chapter duties. In 1993, he was the recipient of the Luzerne County Chapter's "Engineer of the Year Award" and in 1998 and in 2003, he received the Chapter's "Distinguished Service Award".

After graduating from Penn State in 1973 with a B.S. in Civil Engineering, Walter started his engineering career with Smith, Miller & Associates, Inc., in Kingston, PA. From 1974 to 1979 he served as the Assistant Project Manager in charge of Civil Engineering design for the Kingston Disaster Urban Renewal Project, a \$25 million flood recovery project to rebuild the infrastructure of the Municipality, which was ravaged during the Tropical Storm Agnes flooding in 1972. After leaving Smith Miller in 1979, he worked eight years for another engineering consultant and for a site construction contractor. In 1988, he rejoined some former colleagues in establishing the Architecture + Engineering Group, Inc., a multi-discipline consulting firm in Wilkes-Barre. He is currently the A + E Group's Senior Associate in charge of Civil Engineering and site design. In the last 17 years he has been involved with scores of projects, serving a variety of public and private clients such as Ecumenical Enterprises, Inc., TFP Limited, the Greater Pittston Chamber of Commerce, the U.S. Postal Service, the Luzerne County Housing Authority, Back Mountain Recreation, Inc., the Pittston Area School District, Biscontin Distribution Centers, Dunmore Oil, Inc., TJ Maxx, Energy Unlimited, Inc., the Wyoming Valley West School District, PA American Water Co., and the Luzerne County Community College, to name a few.

Walter's activity has not been limited to only the Engineering profession. Since 1981, he has been a member of the Kingston Shade Tree Commission, serving as the Chairman for the last 16 years. He has also been involved with youth sports in the Kingston community for twenty years, having coached dozens of baseball, football, basketball, and soccer teams. He was president of the Kingston Little League for four years. He is a lector at St. Ignatius church and is a member and past president of the parish's Holy Name Society. He is also a member of the Knights of Columbus.

He and his wife Pearleen have been happily married for thirty-two years. They are the proud parents of two sons, Kevin, a licensed physical therapist, and Scott, an accounting major at King's College, and one daughter, Mrs. Amy L. Daiute, P.E., who is also an active PSPE member. He and Pearleen are the proud grandparents of little Antonio, who is not only cute, but also gifted & inquisitive, sure signs of a future engineer.

David McCullough, P.E.
Candidate for Northwest Region
Vice President



Mr. McCullough is a Civil Engineer employed as a Transportation Senior Engineer for PBS&J in Canonsburg, Pennsylvania. Currently he is working as a Section Manager on the Design Management team for the Pennsylvania Turnpike Commission's Mon/Fayette Expressway SR 51 to I-376 project. This project, estimated to cost nearly two billion dollars to construct, will be the largest highway transportation project ever constructed in Pennsylvania and currently ranks in the top five largest transportation projects in the United States. The project section will complete the expressway from I-68 in West Virginia to I-376 in Pittsburgh, Pennsylvania. Dave is also involved with other highway and tollroad projects in the Canonsburg office.

Dave formerly worked as a Project Manager for Michael Baker Jr., Inc., the engineering division of Michael Baker Corporation, Pittsburgh, Pennsylvania. He was part of the project team that serves the Pennsylvania Turnpike Commission as the General Engineering Consultant. When he first joined Baker, his initial assignments were on the Turnpike's expansion projects, the James E. Ross (Beaver Valley) Expressway and the Amos K. Hutchison (Greensburg) Bypass. Dave's work on Turnpike projects included traffic and roadway engineering review of final design construction plans as well as traffic and planning on environmental and preliminary engineering studies. He was a member of the management steering

committee for the Turnpike's 65-mile Mon/Fayette Expressway and 35-mile Southern Beltway Environmental Study for nine years, leading the traffic and engineering subcommittees. He also participated in the development of design plans for the Uniontown to Brownsville portion of the Mon/Fayette Expressway. Further, he served on the Design Management Team for portions of the Southern Beltway. Dave is also a member of the ITS Steering Committee for the Southwestern Pennsylvania Commission. Other work assignments have been on projects in Ohio, West Virginia, Florida, Illinois and Mississippi.

Dave's prior employment includes work for the District 12 office of the Pennsylvania Department of Transportation in Uniontown, Pennsylvania. Dave was a Project Engineer in the Construction Unit, managing reconstruction projects on Interstate 70, PA Route 19 and local bridges. He also worked as a surveyor for Mounts Engineering in Washington, Pennsylvania where he was involved with many private and municipal property surveys. Projects of interest include a large boundary survey of Appalachian Trail properties in New York for the US Department of Interior, construction surveys for the Uranium Tailings Remediation Superfund site in Canonsburg, Pennsylvania and monitoring of coal mine subsidence in Greene and Fayette Counties, Pennsylvania.

Dave graduated from the University of Pittsburgh in Pittsburgh, Pennsylvania with a Bachelor of Science degree in Civil Engineering in 1983. He received a Master of Science degree in Civil Engineering from the University of Pittsburgh in 1986 where he studied Traffic and Transportation Planning. He is a registered professional engineer in Pennsylvania. He joined the Washington County Chapter of PSPE and later transferred to the Beaver County Chapter when he began working at Baker. In addition to committee work, Dave has served as a Director, Vice-President and President of the Beaver County Chapter. He has been part of the Beaver County MATHCOUNTS Committee for the past twelve years and has been the Beaver County Chapter's Coordinator for the past eight years.

Dave was born and grew up in Washington, Pennsylvania where he was

active in East Buffalo Presbyterian Church, serving in leadership roles and as the church organist. He later moved to Beaver County where he met his wife, Linda. Linda is a Doctor of Audiology with Jameson Health System in New Castle, Pennsylvania. Dave now serves as Council President, sings in the choir and teaches classes at Holy Trinity Evangelical Lutheran Church in Beaver, Pennsylvania. His spare time is spent in the garden, running and working on his house and yard. Dave and Linda reside in Brighton Township, Beaver County.

**Francis J. Stanton, Jr. P.E.
Candidate for Vice President
Southeast Region**



Francis J. Stanton, Jr., P.E. is currently the PSPE Southeast Regional Vice President, and former State Director, President and Treasurer for the Valley Forge Chapter of PSPE. He was also President of the

Union County Chapter of NJSPE. Frank is active with the Pennsylvania Initiative, the New York State Practicing Institute of Engineering, NSPE Continuing Education Task Force, and the Membership Recruitment Task Force in 2004

In 2004, Frank became a course evaluator with the Practicing Institute for Engineering, Inc. (PIE). His involvement with PIE, NSPE, PSPE and the Valley Forge Chapter encouraged each level of the society to provide members with educational opportunities to obtain PDH's approved by the New York State Education Dept. and other states requiring PDH's for professional engineering registration renewal. Frank encourages NSPE, PSPE and Chapters to provide PDH approved programs to our membership at no additional program cost. PSPE can provide more than half of the PDHs needed for licensure renewal by attending NSPE and PSPE conferences and meetings.

Frank participated in the NSPE Membership Recruitment Task Force, and the PSPE Membership Committee, hence he was able to promote ideas and concepts between National and State organizations to attract and retain members. This included several

programs from the 6 month free membership, student discounts, and adding value to our membership through chapter programs, continuing education, MATHCOUNTS, awards, and defending the professional engineer through legislative initiatives.

As a member of the NSPE Continuing Education Task Force, he worked with the NSPE staff to select the program offerings that were presented in Chicago. The program selection starts with approximately 40 programs, which the committee narrows down. Many of the programs were approved for PDHs, and attracted engineers from around the country to participate in the NSPE Annual Conference in Chicago. This year, he is again participating in the program selection for the NSPE Annual Conference in Boston. The 40 plus programs are being reviewed and assessed to provide another successful conference in Boston in 2006. For PSPE, he is involved with helping to select and arrange programs for the May 2006 Conference in Valley Forge. The annual conference in May should prove to be a successful one with a large number of attendees and programs offering PDHs necessary for our members to obtain for their license renewal.

The Northeast Leadership Conference was organized and held during the summer, and Frank provided a joint presentation with Heather Anderson, the NSPE Chapter Liaison, to update the Northeast Chapters with the new web page format, membership programs, educational opportunities, and webinars. The leadership conference was a half day event with about 40 members in attendance, where information about programs, chapter activities and best practices for running a chapter were explored.

Most recently, Frank has been working to promote engineering with Sara Frailey, P.E. of the Public Relations committee. They are researching and scripting messages that will promote engineering and inform the public of professional engineers. Hopefully, we may be able to hear radio messages promoting engineering as we drive to work. Radio campaigns are being initially planned for Pittsburgh, Harrisburg, and Philadelphia areas. If successful, other areas of the state will be hearing our message as well.

Frank graduated from Villanova University in 1981 with a Bachelors Degree in

Mechanical Engineering. After graduation Frank was employed by Alfa-Laval Thermal and Food & Dairy Groups in Fort Lee N.J., Tower Performance, Inc., Amstar (Domino Sugar), British Oxygen Corporation (BOC Gases) before becoming Vice President for design-build and consulting engineering firms.

In 2001, Frank and Ann Marie, his wife of twenty years and also a graduate of Villanova's mechanical engineering program, organized The ENC Group, LLC a DBE providing project support services to the industrial, commercial and governmental markets. They have provided operating, and engineering companies with technical support for projects in the U.S., Mexico, Canada, Sweden and India. In addition, they have completed the designs for major facility expansions with material handling upgrades, process plant relocations, power plant upgrades, boiler installations, process piping and process vessels, and they are active in the transportation market providing project support activities such as scheduling and cost estimating for major projects.

Frank and Ann Marie reside in Richboro, PA with their three sons, Francis, Matthew and Jonathan. The three boys are competitive swimmers on Council Rock High School South's Swim & Diving Team, Tri-Hampton YMCA Swim Team and Council Rock Swimming & Diving Club Team.

**Richard P. Aulenbach, P.E.
Candidate for Vice President
Southeast Region**



Richard P. Aulenbach received his BS in Mechanical Engineering from the University of Pittsburgh and his MBA in Administrative Management from St Joseph's University. Rick

continued his education earning a Bachelor of Science in Mechanical Engineering from the University of Pittsburgh, an MBA Administrative Management from St Joseph's University, Leadership in Professional Service from Harvard Business School and New

"Candidates" continued p. 18

"Candidates" continued from p. 17

Developments in Manufacturing Process Technology from Massachusetts Institute of Technology.

Rick began his career with Aluminum Company of America (ALCOA) in Pittsburgh, PA as a mechanical engineer. He joined Gilbert Commonwealth (which became Parsons Power) as a mechanical engineer and progressed to the position of Project Manager for major power and industrial projects.

Rick founded RPA Associates Inc. in 1989 which is headquartered in Wyomissing PA and has a staff of more than 80 people located in offices in Pennsylvania, New Jersey, Tennessee and Florida. RPA Associates Inc. is a professional engineering consulting firm that offers comprehensive mechanical, electrical and process engineering, machine design, and structural analysis services to pharmaceutical, educational, industrial, institutional, and utility clients. RPA serves local, regional, national and international clients such as GlaxoSmithKline, Carpenter Technologies and Kutztown University.

In addition to serving his profession, Rick has served on the Board of Directors for the American Red Cross, Penn State Berks-Lehigh Valley Industrial Advisory Council, Alvernia College, Presidents Advisory Council and Northampton Community College, Advisory Group. Rick is an Adjunct Instructor of Mechanical Engineering Technology and Fluids Mechanics Program at Penn State University.

Rick has authored "Considerations in Specifying Dampers in Utility Draft Applications", American Power Conference, Chicago IL 1981; and "Engineering Aspect for a 25 MW Cogeneration Plant," American Society of Mechanical Engineers Conference, Philadelphia, PA, 1988.

He is a member of the National Society of Professional Engineers (NSPE), has served as President and is the current State Director of the Reading Chapter PSPE. Rick is also a member of the International Society of Pharmaceutical Engineers (ISPE), American Society of Heating and Air Conditioning Engineers (ASHRAE) and Association of Iron and Steel Technology (AIST).

A native of Berks County Rick resides in Wyomissing with his wife Judy and their family.

**Michel J. Sadaka, P.E.
Candidate for Southwest Region
Vice President**



Michel J. Sadaka is founder and president of Sadaka Corporation, a project management and engineering consulting firm. With more than 22 years experience in the Construction Management and Engineering fields, he is recognized as an expert in the construction claims field and has testified on

many occasions in court and arbitration hearings in that capacity.

Michel received an M.S.C.E. in Construction Management from the University of Pittsburgh, and a B.S.C.E. with an emphasis on structural engineering at the University of Massachusetts at Dartmouth.

Michel has been actively involved with PSPE since 1993. He has served the Pittsburgh Chapter as Construction Legislative Council delegate, President, and a board member for the past five years. He currently serves as chapter webmaster, chair of the regional MATHCOUNTS program, and Alternate State Director. In the past, Michel has chaired the Pittsburgh Chapter task force to review the Pennsylvania Registration Act, the Engineer's week banquet committee, and the awards committee.

At the state level, Michel currently serves as PSPE Southwest Region Vice President and he chairs the recently formed PSPE Professional Development Task Force. He is also the Professional Engineers in Private Practice (PEPP) Southwest Region Vice Chair.

In addition to being active with PSPE, Michel is also a member of the American Arbitration Association National Panel of Commercial Arbitrators (Construction Industry) and an associate member of the Constructors Association of Western Pennsylvania and serves on the Professional Services Council for the CAWP. ■

"Capitol" continued from p. 7

Reported as amended from Senate Urban Affairs and Housing Committee, read first time, 9/27/2005

New Bills Introduced

H Res. 425 RE: Small Business Health Insurance Options (by Rep. Jennifer Mann, et al)

Resolution directing the Legislative Budget and Finance Committee to investigate and report on the advantages and disadvantages of allowing small businesses to buy coverage for employees through the adult basic coverage insurance program.

Referred to House Commerce Committee, 9/26/2005

House & Senate Fall Session Days Schedule

2005 House Fall Session Schedule

December 5, 6, 7, 12, 13, 14, 19 (non-voting)

2005 Senate Fall Session Schedule

October 17, 18, 19, 24, 25, 26, 31

November 1, 2, 14, 15, 16

December 5, 6, 7, 12, 13, 14

Copies of all bills of interest are available from the PSPE office, or they can be accessed via the Internet at www.legis.state.pa.us/WU01/LI/BI/billroom.htm. ■

Political Action Committee

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Many thanks to the following individuals who contribute to the PSPE Political Action Committee fund. The PAC fund allows PSPE lobbyists to influence bills on behalf of PSPE members. PSPE is very active at the Pennsylvania state capitol. Each session we monitor legislation that could impact PSPE members in their profession. Your contributions are critical as PSPE affects bills such as those found in the article "On Capitol Hill."

To receive monthly legislative updates from the PSPE listserv, simply send an e-mail message to jennifer@wannerassoc.com with the subject: "add me to the monthly update." To support to Political Action Committee, send a PERSONAL check to PSPE/PAC, 908 N. Second Street, Harrisburg, PA 17102.

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Mechanical Engineer – Philadelphia, PA

Bachelor's degree required as well as one to three (1-3) years experience with a consulting engineering firm. EIT registration preferred.

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Bachelor's degree required with a minimum of two to five (2-5) years HVAC systems design and commissioning experience. Experience with AutoCAD Building Systems 2005 software helpful but not required. EIT registration preferred.

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Bachelor's degree required as well as four to six (4-6) years relevant experience. PE registration preferred. Experience with AutoCAD also preferred.

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Bachelor's degree, ten (10) years relevant experience in building design and a PE are required. An MS is preferred.

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We're seeking a professional electrical engineer with a BSEE and a minimum of 7 years experience. Will be responsible for client interface and construction coordination of low and medium voltage power distribution systems, including double ended switchgear, diesel generators, and UPS systems. The successful candidate will possess a working knowledge of NFPA, IEEE, ANSI, and electrical equipment construction standards, and have prior electrical project management or lead electrical design experience. PE registration required.

Interested candidates should submit a letter of interest and resume in confidence to: Human Resources Director, H.F. Lenz Company; 1407 Scalp Avenue; Johnstown, PA 15904. E-Mail: rmciver@hflenz.com. FAX: 814-269-9400. NO PHONE CALLS PLEASE. AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER.

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Cover Story

Daniel A. Nolan, Project Manager for Production
Pickering, Corts & Summerson, Inc.

Cooperation is key to success for highly accelerated design-build project.

In 2004, Pennsylvania Department of Transportation (PennDOT) Engineering District 5-0 undertook one of their first design-build projects, which involved the interchange of Interstates 80 and 380 interchange in Monroe County.

Advertised as Project No. 70303 on the Department's ECMS website, James D. Morrissey, Inc., an established contractor based in Philadelphia, became the successful bidder and had selected Pickering, Corts & Summerson, Inc., of Newtown, PA, as their engineering design consultant. These three major participants developed a partnership that was essential to successfully completing a very challenging project.

Due to the harsh Pocono region winters and heavy truck traffic, the Interstate I-80 and I-380 interchange became a maintenance problem for PennDOT Engineering District 5-0. This section of Interstate was originally constructed in 1964 and reconstructed in 1983 using various pavement designs for the existing conditions. In recent years, the District's Maintenance Unit had been spending more and more resources repairing and patching the eastbound lanes due to progressive deterioration. Repairs were taking up to 6 weeks to complete but only providing 3 months of service life. The rate of deterioration had become such that the repairs were not lasting through the winter. The conditions were creating safety concerns and traffic congestion during each repair cycle, making reconstruction high on the District's priority list.

When funding became available in March of 2004, the District seized the opportunity to advance the I-80 Eastbound/I-380 Southbound Interchange project, which became S.R. 0080 Section 09S. Faced with having to deal with another winter of repairs and congestion, the District chose to accelerate the project with the goal of completing construction before the next winter season. This set the stage for an ambitious schedule

that would showcase the resourcefulness and determination of all those involved. Their efforts are an excellent example of the partnering and teamwork needed to complete a project in an unprecedented time frame of less than 9 months from design concept to substantial construction completion.

The District responded to the challenging schedule by condensing the initial administrative process into two short months. This effort included evaluating the project; determining the design parameters, including the analysis for full depth pavement reconstruction; identifying needed geometric and drainage improvements; evaluating and processing design exceptions; obtaining necessary environmental clearances; developing the contract and proposal for bidding; and then advertising the project. The District's staff worked diligently to move the project forward and consulted with involved outside agencies to evaluate regulatory requirements and ensure that the project would advance in a timely manner.

Due to the District's committed effort, the project was advertised on May 7, with a let date of June 18 and an Anticipated Notice to Proceed (NTP) date of August 16, 2004. Their dedication did not stop once the project was advertised. Knowing the challenging construction schedule, the District ushered the project through the award process and issued NTP in just two weeks, a process that could take as much as 2 months. This gave a needed early start for the contractor's design firm.

Knowing the hectic schedule that would ensue, Pickering, Corts & Summerson, Inc. (PC&S) began developing the engineering design as soon as the design-build team was formed in late-May, three weeks before the

let date. PC&S identified traffic control as the critical component that had to be resolved prior to the bid. Within the pre-bid period, they developed the highway geometry, coordinated with the contractor, and designed a functional traffic control scheme that gave the contractor the green light to continue pursuing the project. Also within this period, PC&S identified other key project components, including coordination with project stakeholders, and developed a design schedule that would allow the contractor to start construction in just six weeks from NTP. Needing to condense the design effort, the schedule established a critical path which promoted only those design components that were absolutely necessary for construction to begin and demoted all other components that could be completed during the initial construction stage. The Traffic Control Plan (TCP) is an example of this approach. After coordinating with the District's Work Zone Unit, PC&S divided the TCP to focus on the development of only those stages needed to start construction. This greatly reduced the time required for design and review of the initial TCP submission and spread the remaining TCP development over a more manageable time period.

The key to success during design development was forming a true partnership between the District, the designer, and the contractor. Any delay could have pushed construction into the winter season and closed down the project. PC&S maintained continual contact with the project stakeholders to ensure that there were no surprises that might compromise the schedule. PC&S contacted both the contractor and the District's reviewers prior to and during development of each project element to discuss concepts and assure quick approval. The design schedule could not have succeeded without the District's commitment to one-week review periods for all submissions. Another key to

success was the cooperation from the Monroe County Conservation District, who gave their full support to advancing the project.

All of this effort would have been for naught, without the resourcefulness of the contractor, James D. Morrissey, Inc. (JDM). With a construction schedule of just over fifteen weeks, JDM implemented a 6-day workweek that included 10 to 12 hour workdays. They developed a process that broke construction into three logical phases: excavation, subbase preparation, and concrete paving. JDM organized their construction crew to include three excavation gangs to keep abreast of the other less time consuming construction sequences. The experience of

the JDM construction crew in constructing concrete pavements was instrumental to the project's success. Their skill allowed them to maintain a high level of quality during the fast paced construction that was needed to maintain the sequencing of the Traffic Control Plan.

Partnering and teamwork extended into the construction phase. JDM, the District's Construction Unit, and the Monroe County Conservation District all worked together to meet the established completion date. There was a cooperative effort to resolve on-site issues and concerns quickly, and without delay. In this manner, JDM was able to open the Interstate to traffic on October 11, 2004, six weeks ahead of schedule.

Given the success of the "Eastbound Section," the District planned the "Westbound Section:" S.R. 0080, Section 10S, which was awarded in August of 2005. James D. Morrissey, Inc. was again the successful bidder, and maintained their teaming with Pickering, Corts & Summerson, Inc. Construction is scheduled to begin in March of 2006, with substantial completion slated for October. The schedule is not as intense as the "Eastbound Section," but it does avoid construction and traffic restrictions during five holidays and Pocono Raceway events, all of which make for another challenging construction project requiring the same resourcefulness and determination from all those involved. ■

"Risky" continued from p. 9

Railroad were obsolete within twenty years, the Pennsylvania Railroad as enabled by the Horseshoe Curve was king for more than a century. Sadly it followed the life cycle of a king – vigor, upstarts, forming alliances for strength, fatigue, and decay. Fortunately, mechanical systems are subject to renewal and the Horseshoe Curve remains important both as a path and as a destination. As with every previous stage in Pennsylvania development, without the engineers as empire builders, the country's growth and development would have been a risky business. ■

The "Risky Business" column offers articles covering liability from both the legal and engineering perspective. Mrs. Bowman's articles share general information and should not be relied upon as professional legal advice of either a general or specific nature. Rebecca Bowman is a civil engineer-attorney in solo private practice in McMurray, Pennsylvania for more than 25 years. Her practice is a certified woman-owned business. Her B.S. in Civil Engineering is from the University of North Dakota.

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Thank You

PSPE would like to extend a sincere thank you to the PSPE Life Members who have served our society for many years. The following PSPE Life Members continued to support the work of our society in 2005 by making voluntary monetary contributions. Their support helps to provide core membership services, including publication of the PE Reporter magazine, management of Pennsylvania MATHCOUNTS, and influencing legislation to protect the integrity of the Engineer's license.

On behalf of all PSPE members and staff, we thank you for your support. May you enjoy a happy and healthy 2006.

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