

# ANGLE and LINE

A Quarterly Newsletter by COWAN ASSOCIATES, INC.

Engineers • Designers • Surveyors  
Serving Business, Municipalities, and Industry since 1958



## GETTING AN EDUCATION

by Scott P. McMackin, P.E.

Regardless of our roles in society, each of us will be affected by what happens in the field of education in the coming decades. The impact may be personal and direct as our child or grandchild moves through the schooling process. Or, it may relate to the quality of our employees and thus, our chances for business success.

The knowledge gained, the work habits developed, and even moral values learned by today's students in our schools will in some way determine the efficiency of our health care system, our place in the world market, our safety, and, in short, our quality of life in the coming decades.

Pennsylvania follows a national trend by constructing a legacy of building schools that will stand for generations. But, in a state where more than one-fourth of schools were built before 1950, school officials say that aging structures and keeping up with technology leave them with little choice but to stack up bricks, mortar and debt. According to the National Clearinghouse for Educational Facilities, the average age of the nation's 80,000 school buildings is 42 years. Additionally, as our region becomes a more and more popular place for families to live, our school districts are under tremendous pressure to keep up with the increasing student population, upgrade facilities, and improve the education for students in their district. The result of these pressures is often extensive renovation and expansion of existing facilities or construction of new ones. Through ongoing consultant relationships with some of the premier education facility architects in Eastern Pennsylvania, Cowan Associates has been actively participating to improve the educational experience for many children in Southeastern Pennsylvania.

Cowan Associates has been fortunate to be involved in many of these projects over the past several years, and has established excellent working relationships with the multitude of design professionals necessary to successfully complete an

educational project. Educational projects offer unique and challenging tasks above what is typical with residential, commercial, or industrial type projects. Designers must be knowledgeable of not only the "typical" building and land development regulations, but also be cognizant of requirements by the Pennsylvania Department of Education which oversees building projects undertaken by school districts in Pennsylvania. In addition, there are many individuals, groups, teams, etc. whose ideas must be considered when designing a facility. School boards; teachers; administrators; security, facilities, and food service personnel; and parents are all voices which must be listened to and designed for when working on an educational project.

Needless to say, a lot of time and energy must be spent at the beginning of a project, as well as throughout design and construction, to be sure that design meets expectations and budgets.

Another unique challenge of educational projects is the complexity of coordinating many disciplines, often from many different companies, to design a project in often very aggressive time frames. A design team often includes architects, civil engineers, mechanical engineers, electrical engineers, structural engineers, geotechnical

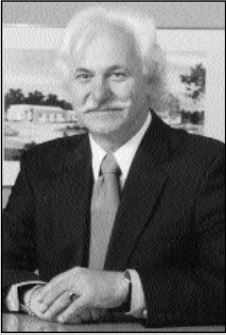
engineers, fire protection engineers, landscape architects, food service designers, construction managers, and possibly additional specialty companies. Additionally, Pennsylvania school districts must hire multiple contractors, such as electrical and plumbing, instead of a general contractor. Coordination among these disciplines is essential to accomplish a successful project. As with other aspects of our lives, experience and knowledge working together usually makes these tasks easier and more efficient. Working with architects and engineers who have experience with these types of projects and have worked together before is a big advantage. While each project is unique and carries its own set of challenges, a good, competent design team can truly make or break an educational project.

Cowan Associates, Inc. is proud to have worked or is working on the following educational projects within the past



(Continued to page 2)

## PRESIDENT'S CORNER



”Writing is an exploration. You start from nothing and learn as you go.” This quote that I read somewhere and whose author I can’t recall comes to my mind every time I am struggling to articulate a specific subject matter in writing. Or, as my 3 year old grandson, Zachary, said when asked to thank a nice waitress for serving him, “I am saying it, but no words are coming out.”

Recently I was invited to participate in jurying Penn State’s Architectural Engineering Thesis Competition for fifth year students. This event culminates a year of intense work by the graduating students. I am certain that all of them will be deserving of an award, but only one will win. What should I tell them; what of my life experiences would be helpful to share with them?

Last year, Carnegie Mellon University School of Engineering held a panel discussion, asking the question “Is America Falling Behind?” The backdrop of this panel discussion was a study released by the American Society for Engineering Education, which reported that fewer than 5% of undergraduate degrees awarded in 2004 were in engineering. How disastrous might this be for the nation’s global leadership in technology? Not that disastrous, according to Carnegie Mellon’s Dean of Engineering, who stated that America can remain “at the top of the food chain” if it trains its engineers in management, finance, policy and entrepreneurship. He went on to urge us to train engineers who will “manage, create, and deploy innovation.” Talking to my professional colleagues, I see a realization in our profession that while a solid educational background in engineering fundamentals is essential, without mastering the so-called “soft” topics of public speaking, leadership, and writing, engineers will be relegated to data crunchers. Our times require engineers to leverage their technical skills to grow and lead successful companies, both large and small. It’s not enough anymore to just be a technical genius – you have to be able to develop a vision and then implement it.

We see more and more encroachment of technologically savvy individuals into what was once considered the exclusive domain of professional engineers. You no longer have to be an engineer to work in technology but, as a well-trained engineer, you can take leadership roles in other areas.

That is what I will tell the Architectural Engineering seniors at Penn State, and I can do this by sharing my own life experiences.

I came to this country over 30 years ago from my native Austria, bringing with me little more than an excellent background in engineering fundamentals. Having this know-how gave me a chance to start my career development. However, as a barely English-speaking immigrant, I was burdened by a heavy accent and very limited writing skills. This forced me to work on these shortcomings for years, and my ever-so-gradual

(cont.)

improvement over time permitted me to take on leadership roles, write articles for professional journals, and earned me professional recognition as a seminar speaker.

For me, the so-called “soft” topics were the most difficult ones to learn, and how glad I am to have persisted in my struggle.

My message to the Penn State Architectural students, the Cowan team, and you, the reader, is this: In an increasingly competitive dynamic and ambiguous business and jobs environment, communication skills are critically important survival skills; acquire them.

### GETTING AN EDUCATION

(Continued from page 1)

few years:

Northampton Area School District Senior High School Addition and Renovation, Northampton, PA (MKSD – Project Architect)

Catasauqua Area School District High School Conversion into Middle School, Renovation and Addition, Catasauqua, PA (MKSD – Project Architect)

Bethlehem Area School District Liberty High School Renovation and Addition, Bethlehem, PA (Spillman Farmer – Project Architect)

Bethlehem Area School District Freedom High School Renovation and Addition, Bethlehem, PA (Architecture Furst – Project Architect)

Northwestern Lehigh School District Middle School Addition, New Tripoli, PA (MKSD – Project Architect)

Palisades School District High School Renovation and Addition, Kintnersville, PA (MKSD – Project Architect)

Daniel Boone Area School District A New Monoacy Center Elementary School, Amity, PA (KCBA – Project Architect)

Bethlehem Area School District New Broughal Middle School, Bethlehem, PA (Architecture Furst – Project Architect)

Northwestern Lehigh School District Weisenberg Elementary Renovation and Addition, New Tripoli, PA (MKSD – Project Architect)

Being part of projects which have tangible and long term impacts on students in our communities is a source of great pride. It has been an extremely rewarding experience working on these projects, and Cowan Associates hopes to continue working on school projects in the future.

### 2005 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS

by Todd R. Myers, PLS

In October 2005, efforts towards the latest revisions of the Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys culminated in a positive vote by the Board of Directors of the National Society of Professional Surveyors (NSPS). The American Land Title Association (ALTA), the other party to this standard, also approved the revisions. These revisions are the latest set of revisions to a standard

(Continued to page 3)

## 2005 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS

(Continued from page 2)

which was first promulgated in 1962, and last revised in 1999. The 2005 revisions are a result of addressing a broad range of concerns by the title insurance industry, and the surveying and legal professions.

What is an ALTA/ACSM Land Title Survey? Chiefly it is a survey prepared for commercial properties which require a high degree of title insurance to minimize the risk for commercial lending institutions financing development of such commercial properties. It typically shows improvements, easements, and rights-of-way.

Following is an explanation of each significant revision:

In the first paragraph, new wording clarifies the surveyor's responsibility regarding the ALTA/ACSM standards, the individual administrative standards, and the normal standard of care for each state. What this actually means is that it is recognized and understood that local and state standards or standards of care which surveyors and those respected jurisdictions are bound by, may augment, or even require variations to the standard outlined herein. Where conflicts between the standards outlined herein and the jurisdictional statutes or regulations occur, the more restrictive requirement shall apply.

Paragraph 1 – There are surveyors who believe, because of the implications of the wording in this paragraph, that an ALTA/ACSM Land Title Survey cannot be performed as an original survey on a newly created tract. The revisions clarify that this is not the case.

Paragraph 2 – There are localities in the United States where surveyors are pressured to make revisions to surveyors' land title surveys. The new wording in this paragraph clarifies that any revisions are to be made by the surveyor who prepared the initial survey.

Paragraph 5(c) – The wording in paragraph 5(c) was previously somewhat ambiguous. The change clarifies the responsibility of the surveyor regarding pavement widths and rights-of-way. It also removes the requirement to show the distance to the nearest intersecting street and makes it an option in Table A of the Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys.

Paragraph 5(g) – The standard has always addressed the precision and accuracy of measurements related to the boundary, but the same has never been true for measurements of those boundary lines to buildings, yet this a critical measurement and the revision addresses this issue.

Paragraph 5(j) – Several situations have recently arisen in which non-traditional access points to real estate have been at issue. The paragraph expands the responsibility of the surveyor to locate points of access other than simply via streets and alleys (for example, from adjoining waters).

Paragraph 5(k) – The reference in this paragraph to

recorded documents could have been misconstrued as placing the burden of records research on cemeteries on the surveyor. This was not the intent and has been clarified.

Paragraph 6 – It is appropriate that the record descriptions of the surveyed real estate (or the one provided by the client) be on the face of the plat or map, or at least accompany the plat or map. This was not clear in previous versions of the standards. In addition, the same applies to any new description created by the surveyor.

Paragraph 8 – Due to the changes in the accuracy standards, a new certification is required. In addition, an alternate certificate is necessary if the relative positional accuracy of the survey exceeds that allowed in the accuracy standards (as discussed under paragraph 6 above).

Revisions to Table A, Optional Survey Responsibilities and Specifications are as follow:

What had been Table A, items 14 through 16 (items 16 through 18 in the new standards) existed in the standards only because they were required by HUD when surveyors were performing surveys on HUD projects.

Item 4 – Gross land area (and other areas if specified by the client)

*Questions were often raised regarding what areas were to be shown by the surveyor when this was checked. New wording clarifies confusion.*

Item 6 – List setbacks, height, and floor space area restrictions disclosed by applicable zoning and building codes (beyond those required under paragraph 5d of these standards). If none, so state. The source of such information must be disclosed.

*Many surveyors, particularly in urban areas, cannot apply complex zoning setback requirements to a specific property without interpretation by the jurisdictional governmental agency (which often declines to do so). The new wording agreed upon by ALTA (as were all of the revisions) requires only that the surveyor list the zoning setback information and not geographically depict the setbacks of the face or the plat or map.*

Item 8 – Substantial, visible improvements (in addition to buildings) such as billboards, signs, parking structures, and swimming pools.

*This new item now gives a better example of substantial visible improvements.*

Item 10 – Indication of access to public way on lands such as curb cuts and driveways, and to and from waters adjoining the surveyed tract such as boat slips, launches, and docks.

*As with paragraph 5(j) discussed previously, this item expands the surveyor's responsibility regarding points of address to and from waters.*

Item 11 – Location of utilities (representative examples of which are shown below) existing or serving the surveyed property as determined by:

(a) Observed evidence.

(b) Observed evidence together with evidence

(Continued to page 4)

Cowan Associates, Inc.

120 Penn-Am Drive  
P.O. Box 949  
Quakertown, PA 18951

stamp

Address Service Requested

- Building Engineering
- Environmental Engineering
- Municipal Engineering
- Surveying
- Structural Engineering
- Land Development Engineering
- Construction Quality Monitoring
- Forensic Engineering
- Exploration, Testing and Inspection
- Geotechnical Services



**2005 MINIMUM STANDARD DETAIL REQUIREMENTS  
FOR ALTA/ACSM LAND TITLE SURVEYS**

*(Continued from page 3)*

from plans obtained from utility companies or provided by client, and markings by utility companies and other appropriate sources (with reference as to the source of information)

*The former versions of the standard were somewhat ambiguous on the issues of utilities. There has been an attempt to clarify this issue. Although this item is an excellent example of what is alluded to in the introductory paragraph of Table A, the items of Table A must be negotiated between the surveyors and client.*

Item 14 – This distance to the nearest intersecting street as designated by the client

*This item is the former requirement in paragraph 5(c) to show the distance to the nearest intersecting street.*

Item 15 – Rectified orthophotography, photogrammetric mapping, laser scanning and other similar products, tools or technologies may be utilized as the basis for the location of certain features (excluding boundaries) where ground measurements are not otherwise necessary to locate those features to an appropriate and acceptable accuracy relative to a nearby boundary.

*Both the ALTA and NSPS have, for a number of years, agreed that the alternate technologies and tools available to surveyors are sometimes appropri-*

*ate in performing a land titl survey.*

On a final On a final note though, it is important to remember that notwithstanding the ALTA/ACSM Land Title Surveys, legal precedence established in civil action rulings places the burden of record search, especially easements and rights-of-way, clearly on the surveyor.

The 2005 Standards became effective January 1, 2006. The 2005 Standards specifically state that all prior versions are superseded. In my opinion, there was a giant effort, both input and hours, from many professionals across the country in formalizing and approving the 2005 ALTA/ACSM Standards. These revisions will not only benefit the insurance profession and the surveying profession, but also lending institutions and consumers. Surveyors need to become familiar with the standards of their state and local areas when applying ALTA/ACSM standards and negotiations with their clients.

**ENGLISH IS A FUNNY LANGUAGE – MORE PROOF**  
The bandage was wound around the wound.  
The farm was used to produce produce.  
The dump was so full that it had to refuse more refuse.

