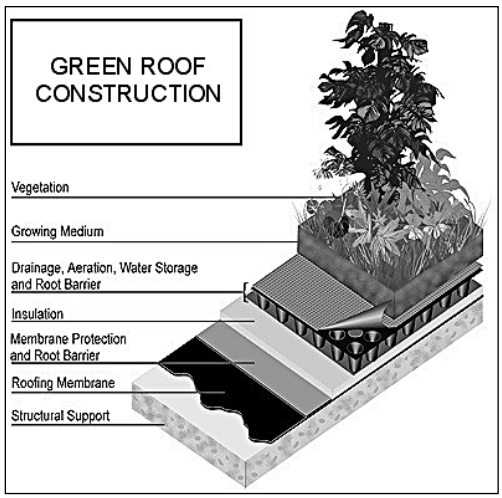
ANGLE and LINE

A Quarterly Newsletter by COWAN ASSOCIATES, INC.
Engineers • Designers • Surveyors
Serving Business, Municipalities, and Industry since 1958

DOING IT GREEN

by Robert W. Whartenby, RLA, CLA, ASLA

As an individual, and professionally as a landscape architect, my roots are founded in sustainable or "green" design. Having had the pleasure of living in Europe for many years allowed me to develop a broad understanding of what we call "green" or "sustainable" design. The notion of sustainability to the Europeans was one of necessity and need. Having learned and appreciated this lesson in design, and coupled by my employment with Cowan Associates, a new perspective can be incorporated into our designs and brought to the attention of our current and prospective clients – that of building green.



What is Green?

By definition, green building is "the practice of (1) increasing the efficiency with which buildings and their sites use energy, water, and materials; and (2) reducing building impacts on human health and the environment through better siting, design, construction, operation, maintenance, and removal – the complete building life cycle."

However, to many in the development industry, building green means designing a structure with "new" materials that drive up costs due to limited product availability, causes installation problems with contractors and are hard to economically justify the initial investment. It is still more common place to construct out of materials that are readily available, thus relatively inexpensive, and that contractors can install with limited impact to time and budget, thus maximizing profit. The goal is to look beyond initial investment by incorporating life-cycle analysis and resource conservation measures into the site planning, design, construction, building commissioning, and operational considerations during the life cycle of a structure or development.

The word "green" or "sustainability" generally refers to lessening the environmental impact and improving the long-term economic performance of new construction while providing a better environment for the end user.

We have generally understood this term to describe what is taking place within a building's architecture. We understand that certain mechanical systems are more efficient than others; that the placement of hot and cold air ducts and returns produces significant gains in comfort while reducing heating and cooling costs; that the reflective value of interior paint can reduce the number of lighting fixtures necessary to achieve a desired lighting level; or that the types of windows specified affect the building's environs by adding better "day-lighting." When collectively considered as a "comprehensive system," these items can save energy and operational costs over the life of the building, all the while increasing productivity, performance and mitigating absenteeism.

Additionally, we are beginning to see numerous manufacturers of green products emerge; thus creating a competitive environment which invariably drives down the cost of green products and increases availability. Economic performance is now measured by the quality of the systems employed, the cost savings on energy bills, and by increased efficiency and productivity by personnel.

The Design Professional as Steward

The definition of "green," as applied to the design practice, has resulted in a broader understanding of tried technologies and methods that we employ in our proverbial tool box. Basically, we are starting to understand the cause and effect of earlier design decisions and how these decisions have impacted the building, the site, the immediate community, or the "downstream" community. We are moving away from the micro approach to design as it relates to the site proper and designing for the macro-environment, including the site proper and the immediate and greater community.

While some of this has been practiced by virtue of our education and applied training, most of the tools have come from the public sector through local ordinances, governmental and jurisdictional agencies, environmental organizations and law. For example, ordinances and regulations have dictated how we design a stormwater management system or control the loss of soil during construction. But ordinances and laws are minimal thresholds to which we must design, they are not meant to be

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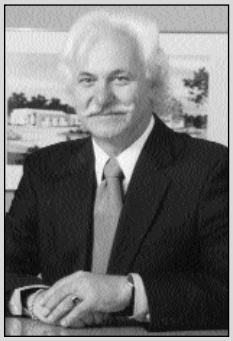
PRESIDENT'S CORNER



Management is a field that touches every individual to some extent . . . from home, to work, to the community. According to Webster, management can be defined as "the act, art, or manner of managing or handling, controlling, directing." Recently I came across these helpful seven step project management instructions on this business resource site:http://wehow.ehow.com

STEP 1: Make sure you have a clearly articulated goal that your project is to accomplish. This can be a complex goal like building a new luxury apartment building, or a simple goal like repainting your house. In either case, knowing the exact criteria for success will be key to your success – it may not be enough to paint your house, it has to be painted a specific color. Most likely your project has a customer – the apartment building has a group of investors to which to answer, a spouse may have a vested interest in the house painting project. Make sure you get total buy-in on the goals as you understand them before starting.

STEP 2: The next step is working out a budget and schedule to support the goals. Your customer may well have a specific cost in mind for the project, and a date by which it should be done. If (in the course of investigating the goals) you learn that one or the other can't be accommodated, some goals may have to be sacrificed. Alternatively, all goals could be accommodated by extending schedule, adding budget, or both.

STEP 3: When making sure that budget and schedule align well with goals, make sure you talk to people that will be collaborating with you on the project. They are usually subject matter experts and you should listen closely to what they tell you. You can hold people accountable to their estimates much more easily when they participate in the process of making them.

STEP 4: Once budget and schedule are approved, it's off to the races. Talk to the people every day who are involved in the project – make sure they update you on progress towards planned milestones. That way you have time to react when things don't go according to plan (and they never do).

STEP 5: Always be thinking about what can go wrong, and line up alternative plans in case they go that way. For example, the day you plan to paint the outside of your house, it could rain. What's your Plan B?

STEP 6: As work progresses, bring your customer(s) by for a look at the work in progress. It may be a matter of interpretation whether something is being done correctly – and your customer always knows better than you. Having them check early and often saves you much heartache at the end.

STEP 7: When the project is complete, ask the customer to accept the work and spend a little time thinking about how it went, what you would have done better/differently if you could do it all over again. That will make you a better project manager next time!

Project management is best understood within a system's approach to planning, scheduling, and controlling. This is what is generally recognized as good practice. Cowan Associates, Inc. senior project managers and principals continuously monitor junior project managers and staff and analyze what works and what doesn't, and then formulate effective strategies to improve and fine tune how we integrate quality, risk, time and cost management. This approach has served you, the client, and us, the Cowan team, well as we look back at 49 years of providing comprehensive engineering services.

DOING IT GREEN

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considered maximums or complete.

As design professionals, it is incumbent on us to be stewards of green design, not because it is a "trend" or a "niche" industry, but because it is the direction toward which design is readily moving. We need to employ the latest of conservation technologies, design for longer life spans and educate those who are reluctant to embrace change or continually think of the immediate "bottom line." Our tools need to be refocused on developing strategies to make green building as common place as the materials and technologies that preceded them.

Where to Begin

First and foremost, building green starts within each and every design professional. We need to analyze and understand the means, methods and principles applied to our product and be able to substantiate those design decisions not only from the practicability but from initial cost to long-term costs.

Secondly, building green, outside of the design profession, is often difficult to understand, questionable in terms of its application, and expensive due to new materials and untested methods. However, as we move forward and the "trend" becomes the norm, this trepidation to change will diminish. The real testimonial will come from the marketplace where competition drives cost down, increases demand, and increases the value of the end product. While designers are quite apt at understanding the forces of "cause and effect," we need to better promote green building techniques to our clients through education and good old-fashioned convincing, lest we be regulated to do it.

Selling Green

Cowan Associates is currently providing engineering services for a Bethlehem elementary school where it is the intent of the school district to obtain an LEED's Platinum Certification. The sustainable or green design elements to be incorporated within the design include a green roof and the harvesting of rainwater to irrigate the proposed athletic fields. Additionally, we have recently completed the application of a porous pavement parking lot at the Lower Milford Township building.

At Cowan Associates, we have taken initial steps towards green and sustainable design through our continued ability to practice and apply new technologies that promote those design elements. In order to make these initial steps into a steady and deliberate "jog," we have to employ the assistance of other design professionals and impart to clients the need to embrace this direction in design.

PERMITS, PERMITS, PERMITS

by Jeffrey L. Schroy, SET, CPESC

Erosion and sedimentation control is a major concern today. Strategies are being developed to improve and protect local watersheds and natural resources. Local county conservation districts and planning commissions are holding conferences that bring together watershed groups, municipal officials, educators, technical experts and agency representatives to discuss effective ways to protect and clean up watersheds, forge partnerships, and maximize the natural resources. CAI employees attend as many of these conferences as possible to keep informed of new regulations, changes to application forms, and any changes to the application process.

Most subdivisions and land development plans must now be submitted to the local municipality, county planning commission, and county conservation district office. Projects under one acre with no point source discharge may not require a submission. Each county conservation district may set different requirements. Point source discharges are when stormwater is collected from a site and outlets at one location. The requirements of the local conservation district must be checked prior to submission of any plan.

Submission of a plan for review of erosion and sedimentation control has two basic parts. The first part is the submission of the county application, sets of plans, narrative, and review fee. The narrative is a document prepared by the applicant's engineer which describes the site, soils on the site, schedule of how the work will take place on the project, and other information about the site.

The second part is the submission of the National Pollutant Discharge Elimination System (NPDES) application. This submission includes the Notice of Intent (NOI) Application, NOI Checklist, Act 14 notifications, Pennsylvania Natural Diversity Inventory (PNDI), a post-construction stormwater management plan (PCSM), sets of the plans, the narrative, and the review fee. The Notice of Intent contains information about the applicant and the site, and must be signed by the applicant and notarized. The NOI Checklist is to be completed to make sure that all items are included. Act 14 notifications are sent to the local municipality and the county to let them know about the submission to conservation districts. The PNDI is completed by the applicant's engineer on the state website to see if there are any special concerns about species or resources within the project area that could be impacted with the project. The PCSM is completed by the applicant's engineer and contains information about the site, information about what Best Management Practices are proposed for the project, and information on maintenance for the project. Best Management Practices are improvements for the site that control the rate of stormwater leaving the site and provide infiltration and/or treatment of stormwater before it leaves the site.

All of the NPDES permits are submitted to the local conservation district. General NPDES permits are reviewed by the local conservation district office. Individual NPDES permits are forwarded to the Department of Environmental Protection for review. With the submission of the Individual NPDES, a General Information Form (GIF) must be completed. The GIF contains sections on zoning, land planning, and utilities.

Recently the conservation districts have established two new requirements to address when a subdivision or land development is being made ready to submit. Previously, the soil conditions and limitations were taken from the Soil Survey issued for each county. It will now be required that the applicant engage a soil scientist to determine the type and characteristics of soils at each site and prepare a report to include with the submission. The other new requirement is the Water Quality Analysis Module form. This form needs to be submitted with an Individual NPDES permit. This form includes a section on site information, antidegradation analysis, and thermal impact analysis.

EMPLOYEE SPOTLIGHT

Cowan Associates, Inc. honored two employees for outstanding service at our annual holiday party in January. The management greatly appreciates their efforts and the hard work of all staff members last year. The two honorees are J. Cheryleen Strothers and Jane E. Divok.

J. Cheryleen Strothers is a project manager in our Land Development department, responsible for small subdivisions. She also performs plan reviews for our municipal clients. As a Sewage Enforcement Officer (SEO), Cheryleen is involved in small flow sewage system designs. Ms. Strothers is also responsible for quality control checking of plans produced by Cowan Associates, Inc. We are also thankful for the fact that Cheryleen is an EMT and part of the Perkasie Ambulance Corps, and has been helpful several times with taking prompt action to help with in-house medical emergencies. Ms. Strothers was specifically honored for outstanding service to our customers, having received several letters of commendation from our clients.

Jane E. Divok is part of our administrative staff. Her responsibilities include reviewing and typing letters, reports, faxes, inspection reports, test reports, permit applications; and filing. She was specifically honored, however, for her hard work in organizing and relocating our archaic inactive filing system into a new rolling file system. Her work included recording all of the files into an electronic data field, which can now be easily searched. Ms. Divok came to Cowan Associates in March of 2001 after working several years at MagiKitch'N and 30 years with Bethlehem Steel Corp.

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

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Engineers Make a World of Difference

This is this year's motto for "Engineers Week." Fifty-five years after its inception, National Engineers Week continues to promote awareness of engineering professions and accomplishments. The innovative and enterprising nature that permeates the engineering profession has always been a part of the American experience. West Point was established after George Washington, who was a military engineer and land surveyor before he became President, called for the founding of an engineering school in the United States. For this reason, National Engineers Week is always celebrated around the first President's birthday. This year, Engineers Week was celebrated from February 18th to February 24th.

"New discoveries and technologies are changing the way Americans live and work," said President George W. Bush in a January 4, 2007 letter to the National Engineers Week Foundation. "Through dedicated research and development, engineers expand our knowledge and lay the foundation for the progress of our country. This week is an opportunity to recognize engineers for their many contributions to our way of life and to encourage young people to pursue their curiosity by studying math and science.

I appreciate engineers for working to advance America's legacy of progress," Bush continued. "Your efforts contribute to a brighter future and embody the spirit of American innovation."

Engineers Week - 2007

Engineers Week was celebrated across the world during the week of February 18-24 this year. As part of the festivities, the Lehigh Valley Chapter of Pennsylvania Society of Professional Engineers (PSPE), in correlation with the Lehigh Valley Engineering Council (LVEC), held a banquet at the Silver Creek Country Club in Hellertown, PA. At the banquet, CAI President Johann F. Szautner was awarded Engineer of the Year honors. We are all very proud of his accomplishments. Congratulations Johann!

JUDGES AWARD

"Mr. Smith, I have reviewed this case very carefully," the divorce court judge said, "and I've decided to give your wife $275 a week." "That's very fair, your honor," the husband said, "And every now and then I'll try to send her a few bucks myself."

CAI

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Cowan Associates, Inc., 120 Penn-Am Drive, P.O. Box 949, Quakertown, PA 18951, 215-536-7075, Fax 215-536-1582
Editor: Linda L. Ferrara**