



# SPED Newsletter

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## *Certification Moves Closer to Reality*

The SPED certification program endorsed at the Annual Meeting is moving closer to reality. A draft plan for certifying piping designer skills is being prepared by the SPED Certification Committee chaired by Jack Belden, GDS Engineering, Inc.

SPED is initially planning to address two cumulative skill areas of certification:

1. Professional Piping Designer "PPD"
  - a. Basic
  - b. Advanced
  - c. Senior
2. Professional Plant Layout Designer "PPLD".
  - a. Basic
  - b. Senior

Specific criteria for each level is being developed.

### **Why Certification?**

Certification has long been discussed inside the society as a means of raising the quality and status of piping engineers and designers. However, the current economy has lent more urgency to the issue as lower cost centers compete with higher cost, more experience workers. Many SPED members expressed a desire to possess a respected credential accepted by Engineering & Construction Employers and Owner/Operator end customers.

The business case for designers to get certified has several elements. Certification provides:

- Documentation of Skills & Competency;
- Increased Employability at Higher Pay;
- Improved Professional Recognition;
- Clear Professional Development Path;

In short, an investment in professional development should pay dividends for years.

E&C employers will benefit as well. They gain:

- 3rd Party Verification of Employee Skills & Competency
- Hiring Candidate Qualifier
- Competitive Advantage on Contracts
- Professional Development Guidelines

Getting increasing numbers of their staff certified can provide just the boost needed to edge out competitors.

Ultimately, the Owner/Operators will gain the most from SPED certification. In today's world of multiple labor sources, they will gain:

- 3rd Party Verification of Resume Skills & Competency;
- Contractor Differentiation;
- Staffing Qualifier;
- Indicator of Professional Commitment and Continuing Development;

Since Owner/Operators have the final say over who designs their plants, certification provides a ideal metric by which to judge designer competence.

### **Current Status**

After several meeting and review drafts, a set of certification criteria is being finalized under the direction of Prof. NS Nandagopal of the University of Houston, Downtown. Prof. Nandagopal is also the Coordinator of the UH Downtown Process Piping Design program. The public comment draft is expected to be approved by the Certification Committee at the June 27th, 2003 meeting.

For more information, contact: William G. Beazley, SPED Executive Director, 713-221-8224, [spedexec@spedweb.com](mailto:spedexec@spedweb.com).

***Editorial: Losing our Detailing Jobs to Low Cost Centers – What to Do***

By William G. Beazley, SPED Executive Director

More and more firms are outsourcing detailed engineering jobs to cheaper firms overseas. Are all engineering jobs headed overseas? What does this trend mean to SPED Members?

A recent article in Business Week Online on the movement of jobs overseas (see: [http://www.businessweek.com/magazine/content/03\\_05/b3818001.htm](http://www.businessweek.com/magazine/content/03_05/b3818001.htm)) said:

*Architectural work is going global, too. Fluor Corp. (FLR) of Aliso Viejo, Calif., employs 1,200 engineers and draftsmen in the Philippines, Poland, and India to turn layouts of giant industrial facilities into detailed specs and blueprints. For a multibillion-dollar petrochemical plant Fluor is designing in Saudi Arabia, a job requiring 50,000 separate construction plans, 200 young Filipino engineers earning less than \$3,000 a year collaborate in real time with elite U.S. and British engineers making up to \$90,000 via Web portals. The principal Filipino engineer on plumbing design, 35-year-old Art Aycardo, pulls down \$1,100 a month--enough to buy a Mitsubishi Lancer, send his three children to private school, and take his wife on a recent U.S. trip. Fluor CEO Alan Boeckmann makes no apologies. At a recent meeting in Houston, employees asked point-blank why he is sending high-paying jobs to Manila. His response: The Manila operation knocks up to 15% off Fluor's project prices. "We have developed this into a core competitive advantage," Boeckmann says.*

Much of this is driven by the "golden rule", i.e., the guy with the gold makes the rules. Growth markets for petrochemical products is viewed as being overseas in Asia and the far east. Capital expenditures and the funding to support it follow growth. Government guarantees, subsidies and outright funding often stipulate local employment and/or partnering. If this bothers you, call OPEC and ask for your money back: You've been funding all this at the gas pump.

Burdensome environment laws and "not in my back yard" restrictions don't help either: There

hasn't been a new refinery built in the US in 30 years. Now, with cheaper fuels and feedstocks available from offshore, there won't be. Now that we've hugged our trees, we can report for work at McDonald's.

This has had a definite impact on the petrochemical design industry in Houston and similar areas. Many Engineering firms have all but given up on detailed design in the US, except where US clients must closely interact with project staff or using foreign workers poses major intellectual property or security risks. The trend is certainly in place.

The stress on the US workforce is showing. Demand for SPED PDS training has jumped, as laid off or threatened workers move to increase their competitiveness in the job market. We added more sessions in May and are contemplating still more sessions in July. More students are funded by state retraining programs. SPED is getting training inquiries from Louisiana and video tape inquiries from across the US.

Engineers are not immune. The American Institute of Chemical Engineers (AIChE) is teetering close to insolvency as worried or jobless ChemE's decline to renew their \$180 annual membership and/or worse, cancel travel to AIChE events. National employment growth projections for Chemical Engineers (Average Hourly Wage 2000: \$32.29) for the decade 2000 through 2010 are a meager 1,353 jobs a percent change of 4.1% for the entire decade. With the average openings per year due to replacement vs growth to be 1,000 vs 135, someone has to die or retire to create a spot for a new graduate.

Is this the End of the World? No, of course not. Ours is an economy on hold, while we contemplate the wars against terror and corporate greed. This is the perfect storm but it will blow over.

But the petrochemical industry is a maturing industry in the US. Yes, there will be new chemical products but the plants will be small. Yes, there will be new clean air additives but they will be brownfield designs at existing refineries. The big, greenfield designs will be for growing, non-domestic markets and that favors non-US work.

## The Road Less Traveled

There is another path for US design firms: Quality & Automation. Foreign firms can't compete if domestic work is superior on a life cycle basis. And you can't lose the detailed engineering if detailed engineering labor doesn't exist.

Look around the major petrochemical complexes of the US. We have an unmatched infrastructure of optimized equipment, procedures and experience. Plants designed with this in mind should have lower life cycle costs and superior safety and availability. Reckless designs and unanticipated problems have killed and maimed hundreds and destroyed the plants they worked in. Today, we are known for the problems we avoid. This hands-on experience had been perfected through many decades of lessons-learned and the tuition was paid in blood.

This hands-on knowledge is very difficult to convey through books, tapes and short courses. SPED should know: We have been perfecting that approach for decades.

But more than efficient execution and lower life cycle costs, our knowledge capital can be converted to software that automates detailed design. Outsourcing of detailed work is possible because front end work "specifies" the critical characteristics of the plant, thus "determining" the detailed engineering. If detailed engineering is so deterministic, it can be automated and, in effect, eliminated. If it is so simple that anyone can do it, why ARE you doing it?

Engineering design firms are more than a portfolio of patents and a web server. Each one is a critical mass of expertise in operational synergies and extending ROI. It is not about cheaper engineering but better plants and bigger profits. Anyone who doesn't see that, deserves to lose out to some number-crunchers in China.

### What Should SPED Members Do?

All this has an impact on individual and corporate SPED members. Individual members should:

- Recognize that only advanced training, documented skills and workplace excellence

can compete with the aspiring workers of the international marketplace;

- Regard piping design as profession, not a job and as such it requires professional development driven by the person (i.e., YOU), not the company;
- Target more business critical design work in the front end by becoming familiar with the requirements of the total plant life cycle (construction, commissioning, maintenance, operations, compliance, safety, turnaround, etc.)

Corporate members should:

- Assess the contribution at any stage of design in terms of its value to the total plant life cycle, rather than its total installed cost;
- Assign workers to design based on their ability to increase plant life cycle returns by considering their ability to anticipate these issues in their design decisions;
- Ask employees to plan careers that enhance their ability to enhance life cycle returns;

Notice that these suggestions do not apply to any particular country however the required skills and experience should be more readily available in locales, such as the US, with more developed petrochemical industries.

For more information, contact: William G. Beazley, SPED Executive Director, 713-221-8224, [spedexec@spedweb.com](mailto:spedexec@spedweb.com).

## *SPED Eyes July PDS I Class*

Demand for PDS training has increased as word about SPED courses spreads across and outside of Texas. "Students from as far away as Baton Rouge have asked to take SPED courses," says SPED Training Director, Nan Bentz.

As a result, SPED is considering a special 3-week PDS I class in July. Normal PDS classes are spread over six weeks. "These classes will meet every night in the week," said Nan, "instead of two nights per week, in order to accommodate out of town students."

For course schedule and enrollment information, contact Nan Bentz at (713) 661-6578.

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### ***About SPED***

The Society of Piping Engineers and Designers (SPED) is only professional organization devoted exclusively to the betterment of Plant Design Professionals. SPED members are involved with the design and assurance of petrochemical plant mechanical containment and fluid flows. SPED advances the profession through publications, training and other professional development activities.

This publication is mailed free of charge to all SPED members. Annual individual membership dues are \$35 for professionals, and \$20 for full time students. Corporate memberships for companies with fewer than 75 employees are \$300 per year (includes 3 individual memberships). Corporate memberships for companies with 75 or more employees are \$500 per year (includes eight individual memberships).

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