Ethics in Engineering Practice: How Easy It Becomes to See in the Dark

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Change is an expected part of life, certainly where individual and group behavior is involved. The author addresses the change in professional conduct behaviors over the past forty-five years that has played a significant part in the public's lack of respect for, and the resultant treatment of, much of civil engineering work as a price-based commodity. The point is made that a profession is defined as being both self-governing and self-regulating. It appears that over time the levels of self-regulation, and correspondingly, of public trust with civil engineers, are significantly lower than desired. Nowhere does civil engineering exist in a vacuum. It must constantly confront new problems, freedoms, and expectations. One source of change to civil engineering is internal. Another more pervasive change-driver is the sociocultural implications of external economic systems nationally and globally. Historically civil engineers have appeared to rely on others to point the way to the role the next generation of engineers should play. Pre-1960s, civil engineers had been concerned about the public image of any profession that appeared to foster attention on itself. In the mid-to-late 1960s, ASCE helped define what acceptable self-promotion for engineers could look like, resulting in business-card-sized ads without much more than providing "Name, rank, and serial number." Today we have no shortage of key chains and pens that glow in the dark as well as self-aggrandizing ads available with sound effects and stimulating visuals selling the image of a firm to attract employees and clients. Up until the 1960s, a partner in one engineering firm would not consider initiating the recruitment of another firm's key people. Today it is not uncommon for firms to hire recruitment firms to target and attract their competitors' key staff using whatever enticement it takes. Reportedly, some clients have told firms, prior to project award, that if they cannot get a specific project manager from another firm on their payroll, they will not get the project. In difficult times, civil engineers come together to fight a common injustice. Once believed solved, they then retreat back to their work silos ready to collaborate the next time a common problem surfaces. Such collective connectedness evaporates when they can no longer share moments of professional complicity. The author's hope is that this paper will stimulate dialogue and profession-wide collaboration to take back ownership of engineering ethics. The search for such relevance and leadership might best start with a reexamination of the unspoken rules of conduct that were cast at a different time, when life in the world was at a different place.

Some years ago, I found myself in the back of a small church near the city of Houston, Texas. The visiting preacher was in the process of teaching how the best of people could be, and in most cases are, led away from their core beliefs. He said that in his years of preaching he has come to believe that good people don't start ignoring their core beliefs all at once, but that it hap-

pens one small step at a time. He then related the following story.

It seems the preacher was on a trip out of town with his wife and they found themselves with about a three-hour break in their appointments. They decided to relax by taking in an air-conditioned movie in the middle of a hot sunny afternoon. After turning in their tickets, they went about seven feet into the inner theater where the movie attraction was already underway. Upon entering the inner theater, as the door closed behind them, both he and his wife felt immediately paralyzed, as if they were blinded. The sudden change in the light went from outside-bright to inside-dark, with the initial sense that one couldn't safely walk without fear of falling. Then a strange thing happened. The preacher said that as their eyes became accustomed to the dark, they were now in the same environment as all of the other patrons. Now they no longer considered the darkness as unique, strange, or even worth discussing. After all, no one else in the dark seemed concerned. How easy it became "to see in the dark."

TRUTH AND RUMORS

How is professional conduct in professional engineering communicated now to the public, clients, employees, contractors, vendors, and to the engineering student? The National Society of Professional Engineers (NSPE) describes engineering ethics as: "The study of the moral issues and decisions confronting individuals and organizations involved in engineering and also the study of the moral conduct, character, ideals and relationship of peoples and organizations involved in technological development" (quoted in Graham *et al.* 2005). In a thoughtful analysis, Hines (2002) finds: "Most poorly made decisions are not the result of a single lapse in judgment. Rather, they result from a heightened unethical level of tolerance. If ethics are incorporated into the everyday engineering problem solving process, it will be easier to escape this tendency." Finally, the World Federation of Engineering Organizations' (WFEO) Committee on Technology (2002) notes:

> Engineers can play an important role in sustainable development by planning and building projects that preserve natural resources, are cost-efficient and support human and natural environments. A closed-loop human ecosystem can be used to illustrate the many activities of engineers that support sustainable development.

Other than from podiums, where does one find advocacy and support for ethical individuals, organizations, and project stakeholders within the various businesses of engineering? Engineers use the childish logic akin to, "We're not the only ones doing it! All the big firms do it." When did this happen?

Sadly, ample evidence suggests that this elementary school-yard 'everyone else is doing it' attitude starts long before one enters the professional workplace. For example, recently one of the teacher/coaches in the Chicago public school system not only encouraged his high school students to cheat in the citywide Academic Decathlon contest, he fed them the answers. According to the eighteen-year-old student captain of the team: "The coach gave us the answer key. . . . He told us everybody cheats, that's the way the world works and we were fools to just play by the rules." Unfortunately, just as workers often mirror the standards set by their bosses, these students followed the guidance of their teacher. (Gini 1996)

When did the owners of some firms develop the self-serving hypothesis that "I'm doing it for my people, I don't want to lay off any of them?"

Are the ethical principles clear? Does each address mainly those individuals who infringe on its boundaries or the root-cause system that nurtures deviance? Will public perspectives of the professional engineer continue to be degraded or elevated within the system of applied "legalistic" practice standards that appears to be in vogue? An ethics guideline cannot be so detailed that it invites "gaming the system." At this point, I see self-governance and self-regulation of responsible professional practice as the challenge for ASCE and others. The more open, public, inclusive, and specific we make this dialogue, the safer others will feel to join in the exploration and understanding of the perceived ambiguity of the subject. No one of us is as smart as all of us.

Can ASCE pass the "snicker" test for leadership in the international markets for raised and personal accountability for professional conduct without concurrent leadership locally and nationally?

Will we continue to assert that making word changes in the code of professional conduct is meaningful without corresponding changes in the self-governing aspect of professional life?

What financial and accounting protocols are applied to assure a firm is doing the right thing as compared to "staying within the law?"

What would a graph of project work awards look like over a five- to ten-year period when compared to the total political contributions of competitors?

What mechanisms exist for project work that require all entities that are party to the project contract to certify that they have not given nor received any form of compensation, service, or product as part of the consideration to award, or be awarded, the project work? How is this monitored and controlled? What might external audits reveal?

What internal controls do professional engineering firms use to monitor and control the political contribution practice

of their principals with regard to the award of project work? Who audits the political contributions of the principal's relatives?

Borchert and Stewart (1986) muse:

> Can a collective such as a corporation be held accountable to moral criteria for its actions? . . . What should an engineer, accountant, lawyer or any other practicing professional do when becoming aware of misconduct by the employing company? . . . If the engineer informs the next person in the chain of command of the problem, and the supervisor ignores the problem, is the engineer freed from moral responsibility? . . . One of the reasons for the ambiguity felt by design engineers is they function within the framework of limitations—limitations of time [and] resources. . . . [Engineers] do the best they can within the limits imposed [by the utilitarian standard of] . . . best product for the greatest number at the lowest price. . . . [Loss of life introduces] egalitarian standards: no individual life should ever be traded off in design calculations, and one life is as valuable as any other.

PROFESSIONAL CONDUCT AND THE ENGINEERING PROFESSION

What controls do design consultants, subconsultants, and related professional firms use to assure that their rules for professional conduct are not based on the "standard of care" principle? The standard of care principle applies to design work, not professional conduct and its interpretation. Leibell (1926) makes the following differentiation:

> Ethics is the scientific or philosophical treatment of morality. The subject-matter proper of ethics is the deliberate, free actions of man; for these alone are in our power, and concerning these alone can rules be prescribed, not concerning those actions which are performed without deliberation, or through ignorance or coercion.

What external and internal audits are invited to learn where either minor or major noncompliance exists with the professional conduct standard? How are the results published and by whom, when, and where? And what happens next?

THINKING POINTS

Some seventy-five years or so ago, the opinion of the engineer on a project was binding and final for all entities to the project: owner, client, community, other engineers, architect, contractors, and vendors. That was the evidence of the level of integrity, reliability, competence, and trust earned to that date. Over time, as some professional engineers became greedy for still a larger piece of the work, they began to compromise their professional conduct standards one small step at a time. Eventually the profession had shaped a new way of doing business, one that would prove unable to stand the light of day. Once exposed for what it was, the public and clients became far less trusting of the engineers. This resulted in the imposition of rules, guidelines, and negotiating requirements that made securing, doing, and completing the work of professional engineering more difficult. I have been told by architecture/engineering principals that they resent being treated as providers of a commodity. Owners state: "If you won't do it, there are a number of other firms that will."

Professional conduct standards were translated from philosophy, historically based on morals and then codified. When most of our country shared common or similar values and beliefs, basing such standards on morals was a safe thing to do. Maintaining such an assumption going forward is no longer valid.

Some say that we ought to unite in order to "take back" the respect and stop being treated as a commodity. I believe we stand challenged to "earn back" the right to be trusted by the public and other project stakeholders. Some impediments to earn back trust include behaviors worth changing:

- Rewriting professional conduct standards to match litigation requirements;
- Continued assertions of the rights of any American to make political contribution (and yet I've learned that some firms use "creative" accounting practices to hide the exchange of "pay-to-play" project awards);
- Pushing PBS and similar television networks to run specials on the marvels of engineering without corresponding public change in professional conduct behavior;
- Using hair-splitting legal language within engineering projects to blur the reality of what's really happening;
- Confusing the defense of our proud profession with subterfuge; and
- A pattern of unwillingness to say, "Hey, look, there's an elephant in the room."

It appears to me that unique reliance on industry self-regulation has become ineffective for the profession. Monitoring, enforcement, and an escalating scale of sanctions are key to effective national and global self-regulation. "The task of the ethical thinker is not to construct a system of rules for the conduct of life—we do not live by rule—but to lay bare the nerve of moral life, the very essences of which is spontaneity and growth away from any fixed form or type" (Seth 1900).

Should we choose not to acknowledge these abuses, ASCE's global emphasis on international professional conduct standards will become heavy with irony, sapping our credibility. The damage to our reputation as ethical professional engineers can only be worsened by refusing to deal

with such issues openly and forcefully, right in our own backyard.

KILLER QUESTIONS

When preparing to address a group of people about a "hot issue," it is not unusual to fear that someone in the audience will ask the question you are least prepared to answer. An effective strategy to overcome this fear is to simply lay out these "killer questions" yourself, and then invite dialogue. Examples of some killer questions are:

- Can our national and global economic system stand the massive change required to return professional conduct standards to the business equation?
- What would happen if we could eliminate the direct financial connection between pharmacists, drug companies, and medical doctors? Would patients be worse or better off?
- What if we eliminated the financial connection between providers of engineering services and those who influence/award the project work? Would the public served be worse or better off?

   1. Involvement in the political process for engineers and other players in the design and construction industry is an important responsibility, providing the role is played out with 100 percent transparency, 24/7. When this point is made, it really fries some who immediately feel compelled to proclaim "No lord, not I."

- Are engineering professional conduct standards situational-dependent or bedrock values, beliefs, and principles?
- Are we capable of self-governing to protect the reputation of the engineering profession and serve the best interests of the public? As the University of Cambridge notes ("MPhil in engineering" 2006):

   There is now a professional duty on engineers to formulate systems, technologies, and attitudes that will deliver a more sustainable approach across all sectors of engineering. Global warming, climate change, resource depletion, wastefulness and pollution generation are some of the difficult problems we face. Engineers have a special place in being able to develop solutions and new strategies to deal with these critical subjects, whilst also providing the necessary tools to address global poverty and health issues. Realistically, solutions to these problems will not be generated overnight and the challenge is in finding robust ways of implementing sustainability at a practical level.

- Who will raise these questions first? When, and in what public forum? Will concern over the short-term economics of special interests continue to prevail?

CONCLUSIONS

Based on the preceding information and opinions, I make the following conclusions:

   1. The engineering profession cannot continue using the same type of problem solving that works for engineering problems, when addressing the techno-sociocultural challenges civil engineers face.
   2. Long-term engineering leadership requires understanding that each and all of us along with the natural and built environment we share on this planet are part of the same system.
   3. The engineering profession, by itself, is incapable of making and sustaining the system change suggested.
   4. The goal of the system of engineering is not to optimize itself. Its goal is to contribute to the goals of the system outcome within which it plays a part.
   5. Engineering leaders must be vigilant to not allow the "comfort of the known" to impede required change.
   6. Basic shared understanding of the differences between assertions made based on either a hypothesis/opinion compared to a theory needs to be present within the engineering management executive boardroom.
   7. The power of the restraining force of fear within the boardroom and senior management ranks appears to be the main culprit to change that matters.

RECOMMENDATIONS

Scientists generally ask "why" and seek to discover paths to answer questions today about our future. Engineers generally ask "how" and apply the lessons of science and technology to make the quality of life today better for our tomorrows. Based on the conclusions, I recommend the following to improve the quality of our tomorrows:

- Stop wordsmithing the ASCE Code of Ethics, and start governing with it.
- Provide simple and clear examples—"straight talk"—of unwanted behaviors for engineers within companies and for their company's ownership.
- Publicly and clearly declare accountability for those companies creatively reimbursing individuals who make "personal" political contributions; those hiring "bird-dog" lobbyists, and those hiring favors given in quid pro quo (Thomas and Rakes 2003).
- Include, as a normal part of each engineering course, case study examples of common professional and unprofessional conduct.
- Promulgate procedures for proactive monitoring and addressing infractions; then publicly implement them in collaboration with state boards of licensing.
- Formally announce the "amnesty period" is and has been over. We neither blink nor look the other way any longer.

- Consider alternative ways to transparently move money to political candidates that support the goals of the engineering profession.
- Escalate the scale of public sanctions (e.g., "One strike, you're out!").
- Demand transparency and public accountability be driven by the profession.
- Publish detailed information on violations in the common press and send these publications to state boards of licensure.
- Promote critical awareness and open dialogue in engineering schools and the public's eye as well as at annual engineering conventions.

EPILOGUE

I would not be surprised to learn that the raising of the myriad of issues, examples, and exhortations herein about professional conduct standards will initially be met with:

- Denial; followed by
- Reluctant agreement, followed by "Ok, sure, but what can I do about it? It's just the nature of our business;" then
- Assertions to "Prove it to me;" and finally
- Challenges to "Either name names or let it go."

Perfectly human responses.

Whenever an emotional hot button is triggered, whoever first said the perceived virtuous trigger word is believed by the others to be presuming self-righteousness, with all others being less-then informed on that subject. I experienced similar reactions in 1986 when the subject was the efficient and effective implementation of quality management systems. Then, I heard such criticisms when the root causes of "why projects fail" were revealed to be common to the systems of management within the design and construction industry.

Similarly, when I have spoken about the need to proactively expand diversity within the civil engineering profession and the university education system, initial reactions presumed those responding were guilty until proven innocent.

Once we agree that it's not about you or me, but the collective "us" for today and the future, we can begin leading, managing, directing, monitoring, and controlling professional conduct change that matters.

Consider the quote attributed to the cartoon Pogo by Walt Kelly: "We have met the enemy and he is us." Kelly explains this abbreviated quote attributed to Pogo: "I attempted to explain each individual [Pogo] is wholly involved in the democratic process, work at it or no. The results of the process fall on the head of the public and he who is recalcitrant or procrastinates in raising his voice can blame no one but himself" (The best of Pogo 1982).

We cannot change the past. We can change our attitude. We can change our present. Our recent past history does not have to be our future. It's your choice.

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