



Meeting the Challenges of the Future Head-On

By Barry Arnold, S.E., SECB

The entire engineering profession is buzzing about two important changes that are on the horizon.

The discussion fuels feelings of excitement and anticipation in some, while in others, it stirs feelings of fear and dread. The topics are structural engineering (SE) licensure and the Bachelor's+30 (BS+30) initiative.

In 23 years of practice, I have witnessed many changes in the profession. Codes and standards change regularly to reflect the latest understanding of the behavior of structures and structural components. The code of ethics changed to incorporate references to sustainability and the environment in response to pressure for engineers to take an active role in planning for the future.

Change is nothing new to our profession, but it is seldom easy. Although change is often looked at dimly, sometimes it is necessary and essential. Improving and adapting to a changing environment has long-term benefits – the most important of which is survival.

I take comfort in the fact that changes in our profession must pass through a variety of organizations and individuals before being implemented. These “filters” are necessary, and to do anything less would breach the trust that society has placed in our profession.

Paramount in the process of change is our responsibility to the public. Although the steps may go by a variety of names, the process of change always involves a large number of engineers and generally flows through the following steps:

Observation: Is the current system working correctly? If it is working, how well is it working? If it is not working, how bad is the problem?

Assessment: How widespread is the problem? Can the profession do better? What is needed to correct the problem? Should we and can we do more? What are the consequences of action or inaction? What happens when the current system fails? How is the problem addressed in the code of ethics and state laws? During this stage, input is sought and alternatives compared. The options and opportunities are carefully reviewed to identify the best possible course of action for all involved.

Engagement: In this crucial phase, the engineering community is involved in a dialogue on the best method to address the problem. Input and insights are sought from engineers throughout the country to provide the widest possible perspective.

Action: The final stage involves doing something, moving forward and implementing the changes to meet our ethical obligation to the public and the profession.

Underscoring this whole process is the requirement that the profession take both the right and good course of action. Right and good are terms used in philosophy with very different meanings. Right focuses on the motives for a particular action. Good focuses on the consequences.

If an engineer has not been actively involved in the process, it can appear that decisions are made in a random and arbitrary fashion. Nothing could be farther from the truth. A number of associations complete an independent review process, thus giving each proposed change thorough scrutiny from a variety of perspectives.

Each step is important and frequently takes many years to complete. For example, structural licensure has been discussed for over 90 years, while BS+30 has been on the table for almost 30 years. Both have been assessed as good and right approaches that will benefit the public and the integrity of the structural engineering profession.

As with all change, there is resistance. Some associations, companies, and individuals prefer to hold firmly to the dogma of the past, others cling to their fears about how the change will affect them, and still others focus on their ego and wonder how they will benefit.

For example, it is easy to understand why states that have no formal plan or peer review process do not see the benefit of structural licensure. They are often unaware of the magnitude of the problem of incompetent practice and the enormous benefit to be gained from separate SE licensure.

It is easy to understand why not everyone sees the benefit of BS+30. Some professional engineers may get through their careers

without ever having taken a class in concrete design. For others, it may restrict their ability to get hired and progress in their firms.

Some believe that the code of ethics canon that “*Engineers shall perform services only in areas of their competence*” is adequate. However, it provides no metric for evaluating competence and no means of enforcement. Those with this mindset are overlooking the first canon, which states, “*Engineers shall hold paramount the safety, health and welfare of the public.*”

Opponents of change should also remember the fundamental principles of the code of ethics that “*Engineers uphold and advance the integrity, honor and dignity of the engineering profession by striving to increase the competence and prestige of the engineering profession.*”

The world of structural engineering is rapidly changing—progressing if you will. Analysis procedures are becoming more complex, code requirements are more involved, and materials are evolving. Those adopting a limited viewpoint may not see the need to embrace and promote structural licensure and BS+30, but that does not mean that these changes are not necessary and beneficial when viewed from a wider perspective.

Accusations of professional arrogance, naiveté, and conceit will undoubtedly abound, as they always do when changes are proposed. Regardless of the accusations that distract the profession from its highest purpose, what remains are two carefully thought-through initiatives. The need for each initiative has been determined to be consistent with our code of ethics, useful to the profession, and, most importantly, a benefit to the public. ■

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