Editorial | *On the Path to the Future: SEI's Strategic Vision*

By Sam A. Rihani, P.E., F. SEI, F. ASCE

At the conclusion of a 2008 strategic planning retreat that the Board of Governors of the Structural Engineering Institute (SEI) organized, the Board envisioned a more advanced, global, socially conscious, and professional structural engineer 25 years into the future. It was then believed that organizations like SEI have a decisive role in shaping the characteristics of this future engineer. Three and a half years later, the Board advanced this vision and developed strategic initiatives in support of this vision. Today, SEI has five special teams that are focused on two initiatives identified as the primary strategies for the Institute to adopt.

While it is nice to envision a future prominence of our profession, we also recognize that such prominence does not simply come about by maintaining the status quo. On the contrary, if we do not involve ourselves today to help in shaping our future, our profession is likely to become more and more dependent on software and computer technicians and less dependent on a structural engineer who is characterized by good intuition and creativity. If we believe that the roles and responsibilities of the future structural engineer are likely to be very different than those of today, then we, individually and collectively, have a very important role to play in helping shape the future status of our profession.

The two strategic visions that have been identified are:

- ***The Future Structural Engineer***
  - Qualifications of the Structural Engineer
  - Structural Licensure
  - Globalization
  - Continuing Education
- ***Future Structural Codes and Standards***

Separate task committees have been established to address these two initiatives. From a strategic standpoint, it is critical that these teams work collaboratively together as there are natural overlaps between each of these topics and sub-topics.

Qualifications: Enabling a structural engineer to succeed and excel requires a sound and comprehensive education, and a strong and relevant experience. I recall, when I went to college nearly 40 years ago, the requirement to graduate with a Bachelor degree in civil engineering was 136 credits (then more commonly known as 204 term credits). In 1925, the requirement was 150 credits. With today's advancements in structural engineering, be it in terms of new materials, more advanced structural software, and increasingly complex structures, one would argue that the requirements for basic education should be higher than the 136 credits mentioned above. This would lead to transitioning the current 4-5 year undergraduate program to a 6-year program. However, what has happened is the reverse, with a reduction of requirements down to 124-128 credits in most universities today. In addition to a sound and comprehensive education, the newly graduated engineer needs to be trained and mentored on the job to build on his/her knowledge and further expand on it to include such related (and practical) areas like project budgeting, project management, constructability, and creative solutions.

Structural Engineer (SE) Licensure: In the advent of increasingly higher requirements for the structural engineer to produce economical designs in a compressed time frame while complying with codes and standards that have become more complex than ever before, the practice of structural engineering runs the risk of compromising the safety and welfare of the public if such designs are not produced by competent structural engineers. This is a risk that our profession cannot take. To significantly reduce this risk, SE licensing (now earned through a new 16-hour examination) is the best available tool. Although today there are only 11 states that have enacted some form of a SE licensing legislation, we believe that such a credential is critical to be adopted by all states.

Globalization: When we hear that a new engineering company that recently sprouted in our town won the project that we also bid on, but for half our price, and we learn that they were able to do so because 90% of the engineering work will be done in India or China with engineers earning ¼ to ⅙ of U.S. engineers salaries, we have to ask ourselves where we fit in the current globalized market we live in. Is globalization a threat, or is it an opportunity? I believe it can be an opportunity. To deal with this challenging new reality, we must address, among other things, the need for an international structural engineering accreditation standard, the changing role we adopt on international projects, and the need for the structural engineer to acquire new skills such as foreign languages and a better understanding of different cultures. We have a significant role to play globally, but we have to prepare ourselves for it if we are to succeed in it.

Continuing Education: In today's fast moving technology with improved tools made available to the general public on an ongoing basis, the need to acquire more knowledge beyond our formal education is more critical than ever before. The current continuing education programs should be enhanced by expanding them to include mentoring sessions, formal on-the-job training, and the traditional seminars/courses. Such programs should cover technical and non-technical topics.

Future Codes and Standards: Structural codes and standards have greatly increased in volume and complexity over the past 25-30 years. While there are good reasons for these changes, the complexity seems unnecessarily burdensome for the majority of structures engineers deal with today. It is believed that as much as 80% of structures are not that complex, and more simplified provisions that would apply only to them (with limitations) would be adequate and desirable from a practice perspective. This initiative will explore the development of simplified codes and standards for certain classes of buildings and other structures. This will require close coordination between the structural engineering profession, building code officials, and standards development organizations.

Needless to say, there is abundant work to do regarding SEI's strategic vision. This work cannot, and will not, be completed in one or two years, as it is an evolving process. I hope this will stimulate an engaged discussion in the structural engineering community, and lead each of us to be part of this very important transformation.▪

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