



# The joy of structural engineering

By Richard G. Weingardt, P.E.

**S**tructural engineers have an astounding sense of pride about their profession. In a nationwide survey that I conducted recently, 100 percent of the 208 respondents answered that they enjoy being a structural engineer — and that the profession allows them to be creative.

Approximately 95 percent felt their abilities and services have improved in recent years. And about eight out of 10 (82 percent) would encourage bright, young people to select structural engineering as a career.

The most frequently mentioned adjectives that members of the profession use to describe themselves are meticulous, hardworking, sensible, competent, and reliable. A good number also said they were innovative, while remaining practical. Although adjectives such as “exciting” or “sexy” were not used, engineers’ self-descriptions were largely complimentary.

Yet, as complimentary as the survey respondents were about the joys of being an engineer, 78 percent did not believe future salaries of structural engineers would increase greatly. This was based upon supply and demand, not enough work to go around, a big influx of “cheaper foreign engineers,” and too many firms — especially ones that charge low fees. Salaries, said most respondents, will increase only when structural engineers “move up the money chain and are seen as being valuable,” and when “we take leading positions in the industry.”

As part of the 22 percent who are optimistic about salaries increasing significantly, Susan Jorgenson, of Leo A. Daly Co., said, “As the public becomes more aware of the value of structural engineering on projects, the more

likely they will be to accept higher fees.” Charlie Carter of the American Institute of Steel Construction, Inc., said this will happen “only if we stop being chicken about charging what we are worth.” Salaries will increase, stated Brian Stirling, of Stirling and Wilbur Engineering Group, with “increased demand and decreased availability.”

**“Structural engineers need to take control, charge higher fees, and provide more comprehensive services.”**

As if completely ignoring the implications of supply and demand within the international marketplace, my study uncovered that only 29 percent of the respondents showed concern about the future impact of H1-b legislation on U.S. structural engineering practices. About 71 percent were either not

aware of H1-b legislation or not the least bit troubled by it! Key quotes from those not concerned (half of the 71 percent) include “Competition is good and the ‘right’ will always win,” “I do not believe in lobbying,” “Local boys don’t want to be structural engineers,” and “We need more immigrants to maintain the U.S. population; allowing in skilled rather than unskilled immigrants is better.”

Nearly 35 percent of respondents answered that their professional associations represent structural engineers adequately. However, 16 percent said just the opposite and 49 percent stated that their associations represented them well only sometimes. They were divided on which national engineering association deals

best with the most important issues of structural engineers. Thirty-five percent of the respondents favor the American Council of Engineering Companies. The National Council of Structural Engineers Associations was preferred by 34 percent, and 25 percent currently agree that the American Society of Civil Engineers (in particular the Structural Engineering Institute) serves the profession the best.

According to respondents, the following issues must be addressed to improve the profession significantly:

**Computer and software misuse** — “Too much faith is put into computer design programs and not enough into ‘hands on’ design,” concluded Gene Zimmer (HCDA Engineers). “This will result in more failures in the future.” The movement to sell software programs to architects and other non-structural experts, thus eliminating structural engineers, have raised similar concerns.

**Improved (and continuing) education** — “There is too much technical information needed for practicing structural engineering to squeeze it into four or five years,” according to Jorgenson.

**More non-technical and leadership courses** — “To flourish, structural engineers must broaden their skills in several areas, including management, marketing, accounting, and general business,” suggested Tom D’Arcy, of Consulting Engineers Group.

**Broader range of services** — “Structural engineers need to take control, charge higher fees, and provide more comprehensive service,” stated Jim DeStefano. If not, they are in jeopardy of being considered a commodity to be hired by low bid.

**Stimulating the next generation** — “We need to get the next generation of engineers excited about the profession and involved in professional associations if we are to improve,” stated Roger Stroud, of Stroud, Pence, and Associates.

These survey-identified areas of concern will only be solved when you, and other structural engineering activists, do something about them. Talk is cheap; to get things done requires more. As stated by William Bast, of LZA Technology, “We must practice what we preach.”

Today’s joys of being a structural engineer will survive — and flourish — only if you personally do something to ensure it. ■

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