A Remarkable Profession …

Structural engineering has been around since the first cave shortage, yet there is a growing perception that this noble profession might now be dying. What fuels this troublesome notion? Perhaps it starts in high school, where many of the brightest students are discouraged from pursuing the long, hard path of engineering. Why labor over calculus and physics, when those hours could be more productively spent learning "high tech" skills like HTML5? Those who reject this logic are often advised to pursue other fields of engineering, such as electrical and chemical, which are perceived to offer higher initial compensation and early exposure to emerging technology, without the burden of obtaining a master's degree.

The perception does not improve in college. Students are told that entry into the profession usually requires a master's degree, a four-year internship, an 8-hour fundamentals exam, and a 16-hour professional practice exam with only a 17% passing rate. In return, they are told to expect a modest but comfortable income. Curiously, structural engineering has the distinction of being the only profession that is not supported by any dedicated departments or degree programs at major universities. There is at least one large university where the dean of engineering has declared that structural engineering is obsolete. He views structural engineers as little more than mathematics technicians that meticulously follow precise codes to produce adequate designs.

In the workplace, many structural engineers find themselves positioned pretty low on the project "food chain." MEP engineers typically receive higher fees in return for somewhat less effort and far less liability. Architects and civil engineers are almost always the prime professionals on building and bridge projects, respectively. They frequently select structural engineers based on price, and often fail to involve structural engineers in the critical conceptual phases of their projects. In addition, they pass along as much liability as possible. As one prominent engineer has written, "*Most structural engineers, over the course of their careers, are responsible for protecting more lives than most medical doctors.*" If you think about that for a while, you will conclude it is true.

Only a handful of states offer "S.E." licensure. In Texas, structural engineers are lumped together will all other types of engineers as generic "P.E." licensees. Meanwhile, structural design codes and standards have evolved into a self-perpetuating industry, with each revision becoming more prescriptive and allowing less opportunity for structural engineers to exercise their professional judgment.

Finally, there is the general public. They really have no clue who structural engineers are or what they do. Based on media reports, isn't it obvious that buildings are designed by architects and bridges are designed by civil engineers? There is only one movie featuring a structural engineer, and he turned out to be a terrorist (Tim Robbins in *Arlington Road*). The only television series featuring a structural engineer highlights another criminal (Wentworth Miller in *Prison Break*). Compare this with virtually any other profession. The problem is not that structural engineers suffer from a poor public image, but rather that they have no image whatsoever.

Considering all of this, why would anyone want to pursue a career in structural engineering?

Perhaps President Herbert Hoover, an engineer, said it best:

> *"Ours is a great profession. There is the fascination of watching a figment of the imagination emerge through the aid of science to a plan on paper. Then it moves to realization in stone or metal."*

Fortunately, many aspiring engineers continue to believe that there can be no greater satisfaction than observing the successful completion of a significant building or bridge that they will have nurtured from conception, as well as the considerable satisfaction derived from the service that they will have rendered to society. These individuals will be pleased to learn that structural engineers are compensated at least as well as architects and civil engineers with comparable experience, and some become wealthy. They will also learn that computers have provided the ability to test multiple options and visualize the results without the number crunching drudgery of the past. In fact, it might even be argued that structural engineering is actually becoming fun!

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