

Structural Engineering: Humanity's Hidden Treasure

Each year, millions of tourists visit engineering marvels, such as the Golden Gate Bridge and the Space Needle, and they stand in awe of the magnificence of these structures. These structures serve as a testament to the groundbreaking nature of structural engineering. More importantly, structural engineers are vital to the advancement of society. Buildings and infrastructure empower a functioning society, and these amenities would be nothing more than an imagination without the work of structural engineers. With that said, the public should widely respect the profession, and millions of young people should aspire to join the industry. Unfortunately, this case is far from reality. I believe structural engineering is treated as a commodity and is largely unrecognized by the public. While my view seems grim, the first step in addressing any issue revolves around acknowledging there exists one. I believe my vision could change as organizations, such as NCSEA and SEI, attempt to address these issues plaguing the profession. Nonetheless, structural engineers must become more engaged if we seek to evoke meaningful change. I find that the industry can increase its recognition and awareness by taking more active roles in the community, better developing our brand, and being at the forefront of critical issues. In my view, the most substantial change occurs at the local level. As structural engineers, we are servants to our communities and work to transform these communities. Despite this incredible work, it often goes unnoticed within our neighborhoods. I believe we should be active community members, and this effort comes in various forms whether volunteering at local food banks or attending city council meetings. We can promote the profession's importance to the public through community engagement. These activities are on a small scale but remain vital in building a relationship with the community, which will aid in finding advocates for our profession. Community engagement also extends to serving in organizations like one's local SEA, ASCE, and SEI chapters. These organizations provide an exceptional forum for developing professional skills and opportunities to network and volunteer. Moreover, the profession should utilize its expertise to improve conditions within our areas. Our industry can genuinely serve the public and prove our worth by applying our unique skillsets, like designing housing for the less fortunate with non-profit organizations.

The structural engineering profession must also increase its presence to the public. Very few individuals truly understand our work and often confuse us with architects. The public's confusion is not their fault and derives from professionals not developing the structural engineering brand. For instance, a significant number of engineers are involved in public projects. While these engineers have maintained relationships with clients, they should become involved in public policy and advocate for increased investment in infrastructure. ASCE creates an Infrastructure Report Card every few years, and the same conclusion continues to be made that more investments in America's infrastructure are needed. Structural engineers play a critical role in infrastructure development, and public officials should rely on our expertise. Furthermore, professionals should actively promote the structural engineering brand in various ways. For example, structural engineers should attend promotional events, such as groundbreaking ceremonies or local news interviews, to highlight our work on meaningful projects. We must also increase our presence through virtual mediums. Social media presents a non-traditional opportunity for engineers to promote their work and inform the public. An example is Mat

Picardal, whose YouTube channel attracts over one hundred thousand subscribers. This engineer leverages this platform to emphasize the importance of structural engineering. As such, further efforts should be made to inspire tech-savvy engineers to create and promote structural engineering content through social media.

Finally, our profession must take the lead in addressing today's social issues. STEM education is in desperate need of investment and support. Many K-12 schools lack formal engineering programs, and numerous university departments lack sufficient funding to support their student body. This situation stems from decision-makers in education not fully understanding the value of these programs. Structural engineers possess the incredible opportunity to advocate for the next generation and shape the future of engineering education. In doing so, our efforts will not only increase the number of aspiring engineers but underscore the value of engineering as an important area in education and society. The structural engineering community should also be at the forefront of diversity, equity, and inclusion (DEI) efforts. DEI is an issue attempting to be addressed by multiple industries, and many continue to struggle with implementing solutions to create an inclusive environment. If the structural engineering industry can make a concerted effort to address these issues, it will lead the way in creating a profession where people can bring their whole selves to work. In addition, this endeavor will inspire other industries to adopt DEI practices better and extend the value of structural engineers beyond their technical expertise.

Overall, the outline posed in my argument presents an extraordinary effort for structural engineers. Our professional community possesses various non-technical skills and interests, and we should align them to initiatives they are passionate about. If we do not act upon measures to improve our public perception, we will fade into obscurity. Take Ray Clough, a structural engineering professor at the University of California, Berkeley, as an example. Dr. Clough pioneered the finite element method (FEM), yet he is far from a household name, and hardly any structural engineers know of his accomplishment. Despite his lack of notoriety, he revolutionized engineering analysis and led the way for the advancements in engineering design for products ranging from potato chips to aircrafts. Like many other structural engineers, he should be celebrated for his contribution to humanity. We must acknowledge that our work matters, and we cannot continue to be an asset to society if they do not know this fact. Our profession needs to mobilize and develop concrete action plans to address the public's perception. Ultimately, I believe this profession is worth this effort, and it is incumbent upon the entire industry to show the world that structural engineering is a gift to humanity.