

What is the importance of the public's perception, awareness, and recognition of our profession? What are the implications of their positive, negative, or indifferent impression of us on our industry and society? Should we do something about it and what happens if we don't?

Unless you have a family member or close friend that is a structural engineer, you likely do not know what a structural engineer does. The structure of a building typically is not exposed and, if it is, the public may not be able to distinguish the structure from the architecture. The public takes our work for granted, as they should from a safety standpoint, and they are unaware we exist until something collapses. When this happens, it is national news, which is not how we want to be recognized.

The I-35W bridge collapse happened near the University of Minnesota as I entered my sophomore year, and the images are engrained in my memory. It motivated me to learn more about structures and how to ensure their safety and usability. I had already decided to major in civil engineering, but this is when I learned that structural engineering was the technical expertise of the built environment. I chose civil engineering to design large structures that are openly seen and would serve the public.

My perception of the culture of our profession was that it was mostly white and male-- what I saw when I looked on the websites of potential employers and at career fairs. I also thought engineering students were typically introverted, relatively nerdy, and a little awkward, like me, and engineers preferred being behind the scenes because of their introverted personality. As a practicing engineer, I learned that more extroverted non-technical skills are required: communication, coordination, working with others, and presentation of our work.

Rather than my opinion of the public's perception or my own initial impression of our profession, I wanted to know what the public's actual perception was to understand what needs to change. So, I asked people their impression of structural engineers prior to knowing me, and here is what they said: "The only knowledge I have is from when the I-35W bridge collapsed and the city was trying to answer how and why that happened." "It involves a lot of math, drawing, and testing." "Structural engineers are probably lumped in with architects, designers, and contractors without much thought to the complexities that structural engineers contribute to the overall result." This was what I expected and provides some insight into what work is needed to educate the public and earn their trust.

The public's genuine opinion of our profession matters. Our daily lives are integrated in the built environment. We spend time in and rely on all types of infrastructure to move through life and survive. Because of how essential our work is to society, it would be unusual not to have some understanding of the profession that makes this possible, and it is evident that there is a disconnect between our profession and the public.

More knowledge will build our industry workforce. We cannot sustain our industry if the public does not know it exists as a career option. Improving public awareness will improve the diversity of our workforce which will encourage people from under-represented groups (racial, ethnic, and gender minorities) to become structural engineers. Representation matters to encourage students to see themselves in a career path. If you don't see structural engineers that look like you, it can be hard to see yourself as one. The more diversity we have in our industry, the more ideas, perspectives, and visions we have for building spaces and an environment that are

equitable and inclusive. In turn, the more open and inclusive our culture is, the more people will think of it as a potential career.

Our industry relies on public and private funding, and it is crucial to make the public aware of the importance of infrastructure. The public has the power to elect government officials that support funding for new projects and infrastructure maintenance. It is essential to public safety that structures are maintained by their owners (public or private). The public's awareness of this issue can prevent deterioration or potential collapse of older structures. We also need to be cognizant that structural failures, like natural disasters, disproportionately impact communities of color and can have lasting effects on these groups. By bringing awareness to this issue, we can contribute to a more equitable society.

Furthermore, we do not want the first time someone learns about us to be when a structure collapses. This leads to the association of our profession with trauma rather than what we pride ourselves on. We can increase the recognition and awareness of our profession through education, community outreach, and public relations. Learning should start as young as possible by reaching out to kids through classroom visits and mentoring programs. There are several programs across the country at varying age levels. Companies engage with local schools, speaking to students in the classroom through recurring activities that build long-lasting relationships. We can provide practical insight to students through job shadowing opportunities at any age and internships for high school students. It is beneficial for mentors to stay with students through their path to college and their professional career to provide guidance and networking opportunities.

In our outreach efforts, we should focus on mentors and students that are under-represented in our industry. Improving diversity at every experience level of our industry, will make us more relatable to all people in society. If there are opportunities to speak on behalf of our industry at a conference or to the media, we should be mindful of the diversity of who is representing us especially when interfacing with the public. We should find a way to encourage colleagues of diverse identities to participate without tokenizing them. This effort involves intentional and meaningful equity, diversity, and inclusion, work within our industry to cultivate an environment that will welcome and retain anyone and everyone that wants to be an engineer.

We can improve our visibility by attending community meetings where our projects are located and encouraging people from the community to be involved in local projects and attend openings. This will create a positive association of buildings with their designers rather than a fearful negative one from a collapse. Individual companies, individuals, or professional organizations should join local professional organizations outside of our industry such as local Rotary clubs, neighborhood councils, or business associations. These strategies make us more approachable and available to those who do not know about our profession. This will help the public see the importance and value to these projects and how they can benefit and be served by them.

It is imperative that we change the narrative around our industry. We need to be intentional about bringing awareness to our profession by leaning into the non-technical side of our identity. Our profession should be as integral in the community as the structures that we build for it. Tackling the uniformity of our culture and improving the diversity of our workforce will make us stronger and better engineers to build a community for everyone.