Trust Me; I am An Engineer

By Alan Kirkpatrick, P.E.

A recent internet meme titled "Trust Me, I'm An Engineer" shows a photo of a severely-damaged concrete column. To remedy gaping vertically-oriented cracks, someone wrapped the column with kitchen-grade cellophane. The caption reads, "Don't worry; we're safe – I fixed it."

Pretending Saran™ Wrap as reinforcing is humorous, but attempting to fix a serious problem with a clearly inadequate solution while asking for trust is the real irony. Engineers are asked to be resourceful, imaginative, and use "out-of-the-box" thinking to fill needs. However, before the number crunching begins, engineers must build trust and should always endeavor to earn that trust. Numbers can be argued definitively among peers, but meaningful trust takes time to develop with clients. Licensure helps engineers earn that trust.

A singular, common definition for an engineer is not ubiquitous. Some states associate the terms engineer and professional engineer. In Oregon, for example, an engineer is defined to mean a licensed professional engineer, and a person practices engineering if that person implies through the use of a title that he or she is an engineer. So, in Oregon, if you claim you are an engineer, what you produce can be considered engineering work.

Strangely, this distinction earned national attention for Mats Järlström, a Portland resident who immigrated to the United States from Sweden over 20 years ago and claims to be an electrical engineer.

It started in 2013 when Järlström's wife received an automatically-generated traffic ticket for running a red light. After studying the light timing and a vehicle's critical stopping distance, Järlström determined that the yellow light illumination period was too short. Using his background, he developed an algorithm to correct the light timing formula and shared his findings in 2014 with the Oregon State Board of Examiners for Engineering and Land Surveying, or OSBEES, among others.

After reviewing Järlström's request, OSBEES noticed he was not a registered engineer in Oregon and cautioned him against using the title engineer in publicized critiques of engineered systems. Järlström initially agreed but continued to promote his fix for the light timing system. When again, in 2015, he described himself as "an excellent engineer," OSBEES opened a law enforcement case against Järlström and assessed a $500 penalty against him for the unlicensed practice of engineering. In its Final Order, OSBEES stated that Järlström violated Oregon's statutes by "purporting to be authorized to practice engineering, including through the use of the 'engineer' title, and by providing an engineering analysis and critique of an engineered traffic signal formula, all to a public body."

The Järlström case has generated broad interest including that of the Portland news media, 60 Minutes, and even George Will. Partnering with the Institute for Justice, Järlström filed a federal civil rights lawsuit against OSBEES, contending violation of his civil rights. Järlström vowed to fight for free speech so that "no one should need a license to speak out when they're concerned about how the government is operating, whether the topic has to do with taxes, trade policy, or traffic lights." Eventually, he hopes that he, "along with the rest of Oregon, will soon be free to talk about technical subjects without risking running afoul of the law." This suit, which recently settled in favor of Järlström, was a collision between Civil Rights and Licensure.

The evolution of civil rights and engineering licensure is interesting. In a paper written by Liberty University's Professor Paul Linden, he provides a rich history of engineering licensure in the U.S in which he describes pre-Civil War engineers as almost nonexistent, fewer than 2,000. They had little specialized education and practiced "mechanic arts." After the war, as towns blossomed into cities, rural farmers became urban business owners, and science played leapfrog with inventions, engineering needs grew. By the late 19th century, engineers became more established because "as technology incorporated scientific principles, it gradually moved beyond the capabilities of an artisan…whose limited understanding of science and physics could not keep pace."

By the early 20th century, with improved educational training and continued industrialization, the number of engineers increased to roughly 136,000. Professional societies, such as ASCE, ASME, AIME, and IEEE, began promoting engineering interests concurrent with trending state legislation to protect the rights of consumers. Linden writes, "Unlike inhabitants of rural areas, city dwellers often did not know the persons from whom they bought their goods or on whom they depended for important services." These inhabitants had "no way of testing their suspicions of being cheated."

States, most notably Wyoming and Louisiana, took action and began enacting licensing laws as a way to shape a profession so deeply invested in the development of the nation. Illinois and Florida followed. Moreover, here the past becomes prologue: Linden contends that when it came to licensing and the governmental proof that an engineer could begin to be trusted, it is the engineers themselves who were "surprisingly ambivalent toward licensing, if not outright rejecting of it." Engineers opposed to licensure? Yes.

Licensure is not intended to restrict civil rights. It is intended to assure the public that those who are hired to create solutions have met minimum standards. Licensure starts the trust process. Whether there is a damaged column or a short yellow light, the public should always know that those who work on their behalf are not charlatans or imposters. Trust me; I am an engineer.▪

Alan Kirkpatrick is a Principal with Kirkpatrick Forest Curtis, PC in Oklahoma City, Oklahoma. He co-chairs the NCSEA Licensure Committee and is a member of the ASCE/SEI Structural Engineering Licensure Rationale Research Committee and the Structural Engineering Licensure Coalition (SELC). He may be reached at **akirkpatrick@kfcengr.com**.