

20-Years in the Engineering Field: A Female Perspective

By Christine Kirby, P.E., ENV SP

Lockwood, Andrews & Newnam, Inc.

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Women in STEM. It's nothing new. Bletchley codebreakers. Hidden Figures. Raye Montague, who revolutionized Naval Ship Design. Stephanie Kwolek, the inventor of Kevlar. Hedy Lamarr, a Hollywood actress and mathematician who helped develop technology that evolved into Wifi. We've always been important contributors in the workforce, especially in technology and STEM fields. There's no question that females are technically capable and excel in academic performance. Women are drawn to careers of social significance and positive impact. But we continue to face inherent roadblocks. According to SWE, we have 37.8% of bachelor's degrees in STEM fields being awarded to women, but only 24.2% of bachelor's degrees in engineering are awarded to women. While women have increased their numbers in other STEM professions, the number of women in engineering in the US has not increased since the early 2000s. Currently, we only have 15% of the global engineering workforce being comprised of women. In the US, it is about 14%. So you have about 24% of engineering degrees being awarded to women, but women only comprise 14% of the workforce in the US. Why is that? Looks like women who leave the engineering workforce are generally unhappy, and it takes support for work-life balance and professional development opportunities for women to stick around. Work life balance and lack of professional opportunities seem to be the barrier, but why?

A bit of HERstory: Starting around the 1950s, there was societal pressure to become a "happy homemaker". This was idealized in the media and on TV, and those of us now still buy into that ideal, although it is not reality at all. What's been created are gender norms and expectations that are hard to breakthrough and can cause barriers in society and within corporate structures and organizations.

Implicit biases include the "prove yourself bias", where women sometimes must prove ourselves repeatedly to earn the same level of respect and recognition as our colleagues. There is also the "Tightrope bias" where we have a narrower range of acceptable behavior. Being assertive can be seen as being too aggressive for a female, but not for a male counterpart, or when a female engineer is given more administrative assignments and less opportunities to grow technically. Women are sometimes offered less advancement opportunities, and in my career, I have seen my female colleagues wait substantially longer for these opportunities and recognition. Even small amounts of bias can have large effects in reducing representation of women over time, especially in high level positions.

It's important to be aware of these biases and work towards erasing them. But what else can we do to improve diversity in the workforce? Representation. It is hard to envision yourself in a certain role or career when there is no one that looks like you there, or no one to look up to. Mentorship. There's no greater ally in your career than a mentor. Be a mentor for a young engineer or person aspiring to a career like yours. If you are one of those young people, find a mentor. Young professionals entering the workforce have so much potential, and so much to contribute. In this ever-changing industry, one of the most important things we can do is recognize and remove barriers that are standing in the way of the best most qualified talent from reaching their potential.