

This is how it started in college.....

**“You get “A’s” because you’re a girl!”**

“It will be easier for you to find a job, because companies have to fill (female) quotas.”



And it has continued as a professional in the industry.....

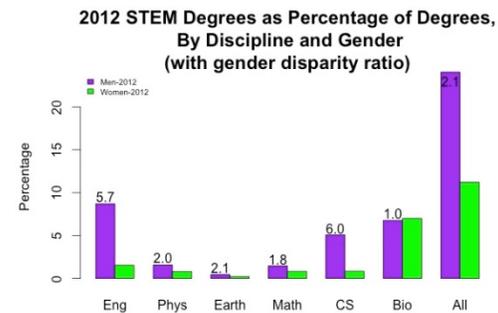
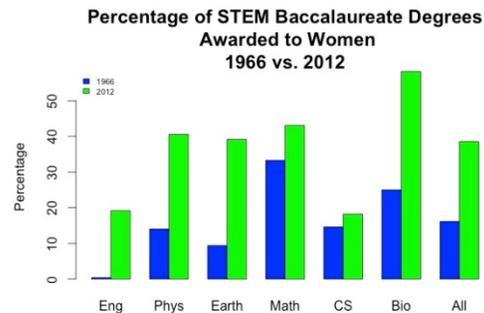
**From a male general contractor to my boss,  
“She’s pretty smart for a broad”**

What may be surprising to some, these comments are NOT from the 1950’s. I graduated college in 1993 and entered into the consulting engineering business the same year. Yes, I was told I was smart for a broad, and I have even been called “darlin’” on a conference call. A female coworker, while doing a site observation this week, was asked if she was the “head bartender”.

When I enrolled as a freshman in college, I immediately declared my major to be engineering. In the large general education classes the gender disparity wasn’t as obvious. However, I don’t want to understate the situation, there were definitely more males than females in what we today call the STEM (Science, Technology, Engineering & Math) classes. As my classmates and I progressed into the engineering specific coursework, the disparity grew.

The gender inequality has been long recognized in the STEM fields, and the issue has come to the fore front of discussions in more recent years. Many schools at various levels are dedicating their curriculum to the STEM studies. There are also emerging programs that encourage girls of all ages into the STEM fields. This new movement appears to be making strides in the right direction. As indicated in the adjacent chart, there was significant growth in the percentages of women awarded STEM baccalaureate degrees between 1966 and 2012. <sup>1</sup>

However, there continues to be a wide gender gap between male and female engineers, not only on college campuses but in the professional industry.



<sup>1</sup> Copyrighted material by Valerie Barr (2014), compiled from the following data sources:

National Science Foundation, National Center for Science and Engineering Statistics. 2013. *Women, Minorities, and Persons with Disabilities in Science and Engineering: 2013*. Special Report NSF 13-304. Arlington, VA. Available at <http://www.nsf.gov/statistics/wmpd>. National Center for Education Statistics. 2013. Digest of Education Statistics. Advanced release of selected 2013 digest tables. Available at [http://nces.ed.gov/programs/digest/2013menu\\_tables.asp](http://nces.ed.gov/programs/digest/2013menu_tables.asp).

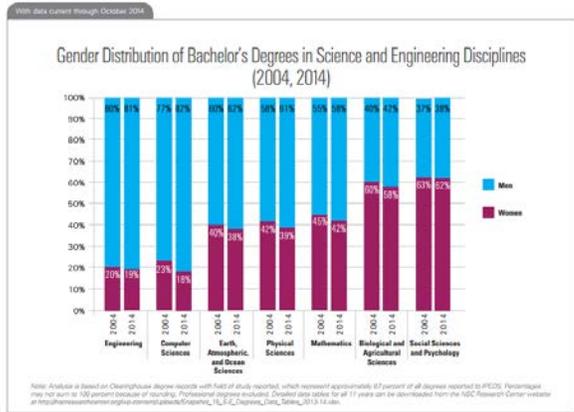
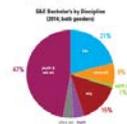
While the number of females with baccalaureate degrees has increased significantly from the 1960s, we are seeing a decrease in women graduates over the past decade. This trend is noted by the National Student Clearinghouse Research Center, “from 2004-2014, the share of bachelor’s degrees earned by women decreased in all seven” science and engineering disciplines.

**S&E by Discipline:  
Women Losing  
Ground at  
Bachelor’s Level**

From 2004 to 2014, the share of bachelor’s degrees earned by women decreased in all seven S&E disciplines.

The biggest decrease was in the computer sciences, where the share of bachelor’s degrees earned by women dropped five percentage points.

In all years studied, women earned the majority of bachelor’s degrees in biological and agricultural sciences and social sciences and psychology.



The first hurdle in decreasing the gender gap is to encourage women to pursue the STEM fields of study. Some studies are leading towards yet another hurdle, maintaining the female engineering work force post-graduation. In the past few years, “close to 40% of women with engineering degrees either leave the profession or never enter the field”. It has also been noted that in the past two decades, approximately 20% of engineering graduates have been women, yet only 11% of practicing engineers are women.<sup>2</sup>

According to a three year study, Nadya Fouad, a psychologist at the University of Wisconsin, Milwaukee, found that women sometimes find the workplace unfriendly and even hostile to women. They also felt there was little opportunity to advance and develop in their field. Other surveys, conducted by the Society of Women Engineers, state “the work environment may be one reason (why women are leaving engineering jobs), but for the majority it is not the case”. The SWE survey noted a wide variety of reasons why women leave the work force faster than men, including a lack of work-life balance.<sup>3</sup>

Even though there are differing opinions as to why women are leaving the engineering workforce, most agree that the bigger problem is getting more women into the engineering pipeline. A few possible ideas would be to encourage growth through different STEM programs for girls, cultural changes within the industry, or even finding ways to support young, emerging professionals. “A new study finds that gender parity in small group settings helps young women engineers feel more confident as they pursue a challenge”.<sup>4</sup> At the encouragement of other engineers I work with, a small group of female engineers have started meeting for lunch periodically. Discussion can range from how we are managing our family life vs. professional life, challenging projects, or just life in general. Within our small group, all of us are engineering graduates, 50% of us have our professional engineering (PE) licenses, and 50% are preparing

<sup>2</sup> <http://www.npr.org/sections/alltechconsidered/2014/08/12/33968726/many-women-leave-engineering-blame-the-work-culture>.  
<sup>3</sup> <http://www.npr.org/sections/alltechconsidered/2014/08/12/33968726/many-women-leave-engineering-blame-the-work-culture>.  
<sup>4</sup> <https://www.sciencenews.org/blog/scicurious/women-engineering-engage-best-gender-parity>

to test to take their PE exams. Our industry experience ranges from 3-23 years. It definitely makes for interesting conversation and gives each of us a network to help us succeed in our different career paths.

As suspected, there is not one solution or miracle cure to increase the female representation in engineering and STEM fields. And as suspected, all is not pending doom and gloom. There are many women engineers who have adapted and found success and are thriving in the industry. Maybe I'm one of the lucky ones; but I'm a female engineer and I've found a successful career in engineering, with encouraging mentors, and I endeavor to find a happy work/home life balance. In retrospect, perhaps I can attribute my success to workplaces that have gender equality. When I've encountered negative gender disparity, I've had fellow female associates to commiserate with.....and we can almost always find humor in the situation. I guess it's better to be a smart broad than a dumb broad....