

feared that they would be held liable if there were an accident. The designers also failed to suggest to the riggers that they should hire an engineering consultant to examine their lifting plans.

When the riggers attempted to lift the top section of the tower with the microwave baskets, the tower fell, killing seven men. The TV company was taping the lift of the last segment for future TV promotions, and the videotape shows the riggers falling to their death.

Consider how you would react to watching that tape if you were the design engineer who refused to look at the lifting plans or if you were the company

executive who ordered the design engineer not to examine the plans.

To take an analogy, consider a physician who examines a patient and finds something suspicious in an area outside her specialty. When asking advice from a specialist, the physician is rebuffed on the grounds that the specialist might incur a liability. Furthermore, the specialist does not suggest that the patient should see a specialist.

What conceptions of responsibility seemed most prevalent in this case? Can you suggest other conceptions that might have helped avoid this tragedy?

CASE 43

*Unlicensed Engineer*¹¹⁷

Charles Landers, former Anchorage assemblyman and unlicensed engineer for Constructing Engineers, was found guilty of forging partner Henry Wilson's signature and using his professional seal on at least 40 documents. The falsification of the documents was done without Wilson's knowledge, who was away from his office when they were signed. Constructing Engineers designs and tests septic systems. The signed and sealed documents certified to the Anchorage city health department that local septic systems met city wastewater disposal regulations. Circuit Judge Michael Wolverton banned Landers for 1 year from practicing as an engineer's, architect's, or land surveyor's assistant. The judge also sentenced him to 20 days in jail, 160 hours of community service, \$4,000 in fines, and 1 year of probation. Finally, Landers was ordered to inform property owners about the problems with the documents, explain how he would rectify the problem, and pay for a professional engineer to review, sign, and seal the documents.

Assistant Attorney General Dan Cooper had requested the maximum penalty: a 4-year suspended sentence and \$40,000 in fines. Cooper argued that "the 40 repeated incidents make his offense the most serious within the misuse of an engineer's seal." This may have been the first time a case like this was litigated in Alaska. The Attorney General's office took on the case after seeking advice from several professional engineers in the Anchorage area.

According to Cooper, Landers said he signed and sealed the documents because "his clients needed

something done right away." (The documents were needed before proceeding with property transactions.) Lander's attorney, Bill Oberly, argued that his client should be sentenced as a least offender since public health and safety were not really jeopardized—subsequent review of the documents by a professional engineer found no violations of standards (other than forgery and the misuse of the seal). The documents were resubmitted without needing changes.

However, Judge Wolverton contended that Lander's actions constituted a serious breach of public trust. The public, he said, relies on the word of those, like professional engineers, who are entrusted with special responsibilities: "Our system would break down completely if the word of individuals could not be relied upon."

The judge also cited a letter from Richard Armstrong, chairman of the Architects, Engineers, and Land Surveyors Board of Registration for Alaska's Department of Commerce and Economic Development. Armstrong said,

Some of the reasons for requiring professional engineers to seal their work are to protect the public from unqualified practitioners; to assure some minimum level of competency in the profession; to make practicing architects, engineers, and land surveyors responsible for their work; and to promote a level of ethics in the profession. The discovery of this case will cast a shadow of doubt on other engineering designed by properly licensed individuals.

Identify and discuss the ethically important elements in this case. How relevant is it that subsequent review showed that none of the falsified documents

needed to be changed? (Although Judge Wolverton did not impose the maximum penalty, he did not treat Landers as a least offender.)

CASE 44

*Where Are the Women?*¹¹⁸

Although women have become more prevalent in engineering schools during the past few decades, they still make up only approximately 20 percent of engineering school undergraduates in the United States. Even this percentage is somewhat misleading. Women are more prevalent in some engineering fields than others. For example, more than 30 percent of the undergraduates in chemical engineering departments are women, but only 13 percent of the undergraduates in mechanical engineering and electrical engineering are women.¹¹⁹ Eighteen percent of all engineering PhDs are awarded to women. There are even fewer women faculty in engineering schools. The higher the faculty rank, the fewer women there are. At the top rank of full professor, less than 5 percent are women.¹²⁰ This means that engineering students in the United States are taught and

mentored almost exclusively by males, that there are few women faculty serving as role models for female students, and that engineering more generally remains dominated by men.

As interesting comparisons, women receive 57 percent of all baccalaureate degrees in the United States and 55 percent of all social science PhDs, women make up at least 50 percent of the students in medical and law schools, and 28 percent of full professors in the social sciences are women.¹²¹ Therefore, what is happening in engineering schools? No doubt, there are a number of contributing factors to the fact that there are so few women in engineering. But many common beliefs about women and academic advancement in engineering prove to be without merit when the evidence is examined.

Belief Evidence

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| <ol style="list-style-type: none"> 1. Women are not as good in mathematics as men. 2. It is only a matter of time before the issue of “underrepresentation” on faculties is resolved; it is a function of how many women are qualified to enter these positions. 3. Women are not as competitive as men. Women do not want jobs in academe. 4. Women and minorities are recipients of favoritism through affirmative action programs. 5. Academe is a meritocracy. 6. Changing the rules means that standards of excellence will be deleteriously affected. | <p>Female performance in high school mathematics now matches that of males.</p> <p>Women’s representation decreases with each step up the tenure track and academic leadership hierarchy, even in fields that have had a large proportion of women doctorates for 30 years.</p> <p>Similar proportions of men and women with science and engineering doctorates plan to enter postdoctoral study or academic employment.</p> <p>Affirmative action is meant to broaden searches to include more women and minority group members but not to select candidates on the basis of race or sex, which is illegal. Although scientists like to believe that they “choose the best” based on objective criteria, decisions are influenced by factors—including biases about race, sex, geographic location of a university, and age—that have nothing to do with the quality of the person or work being evaluated.</p> <p>Throughout a scientific career, advancement depends on judgments of one’s performance by more senior scientists and engineers. This process does not optimally select and</p> |
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