

FOREWORD FROM ACADEMIA

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With an academic education covering the whole spectrum of science, a year or so of universal engineering technology, a couple of years of study focused on a particular technical discipline, and then, continuing education as the field of practice evolves, the question arises “Why does an engineer need to understand the law?” Can’t he or she just engage an attorney to take care of the legal matters? Well, why do engineers and architects study economics? Why are courses in communications filled with engineers and architects? The answer, of course, is that to practice professionally in a world with limited resources that is not populated by androids with common programming, it’s essential that engineers know enough about these disciplines to do some of their own work and to knowledgeably engage specialists when necessary. This requires describing the situation in proper nomenclature and using the advice or results on the consultancy to best advantage. So, at a minimum, an engineer needs to know enough about the law to productively work with attorneys.

But there’s more, much more. Perhaps in some halcyon past, design professionals could pursue their search for solutions to their clients’ problems by following accepted practice and using their own best judgment. Moreover, perhaps the engineers of yore only needed to consider their clients’ criteria and interests. If those days ever existed, they are gone. Professional practice of all types is increasingly driven by regulations, approvals and permits from all levels of government, and inputs from external stakeholders, both “interested” and “affected” parties.

Two elements of the legal landscape, contract law and regulations, show the importance of “the rules” and the conduct expected of professionals in following them. An impact of contract law that is not always recognized is dealing with uncertainty, the context of almost all design work. At the signing of a contract to design, much is unknown, including the actual level of effort needed to produce the solution to the problem. Rules to define “enough,” to avoid scope creep are critical for economic survival of all concerned. In subsequent contracts to manufacture or construct the product, there are always risks of unanticipated conditions beyond the control or predictability of the contracting parties. The principles of reliance are used in one form or another almost daily.

The second example of the importance of understanding the law is the nature of an engineer’s professional responsibility. Alone of the licensed learned professions, the engineer’s first obligation is to the public. Thus, understanding whether the work is covered by strict (product) liability or “ordinary care” (process employed) liability is critical in itself. The range of governmental or professional regulation, from property zoning to welding standards, often appears to constrict the engineer’s options. However, such limits and directions, if properly ratified, represent the public will. These constraints form the context for the designers’ work, and protect them from a client complaining that a designer is using the client’s resources to solve others’ problems. Well so it is! It is thus critical for engineers and architects to understand the basis for

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the law that enables and authorizes agencies to issue regulations and grant permits. If this is the public's speaking, then an engineer has some duty to investigate whether it is consistent, or scientifically applicable in the particular case at hand. That's another element of "first duty is to the public."

A final reason for engineers to be familiar with the law is that, as citizens in a democracy, we have a part in making the law, and with specialized knowledge and experience in some realms, we need to know the process and the underpinnings to make a useful contribution.