

BY LEON WASSER, P.ENG.

The term “ethics” is defined by the Webster’s *New World Dictionary* as “the study of standards of conduct and moral judgment.” The academic field of ethics is vast and ancient, dating back to almost the dawn of civilization. The issue of how individuals and societies should conduct themselves in their day-to-day lives, for instance, preoccupied the ancient Greek philosopher Aristotle. The definition and pursuit of ideal models for ethical or moral behaviour has been the primary goal of religious leaders and secular philosophers throughout the ages. The formal study of ethics involves formulating and applying numerous philosophical models and theories in an attempt to understand how humans can improve their individual and collective behaviours to create a more just and righteous society. Students of ethics examine the concepts of justice, rights, duties and care in a profound and comprehensive manner that ultimately touches on the very meaning of life. For professional engineers, generally practical people, it is application of the principles of ethics that is, or should be, of paramount concern. For many of us who practise in our profession, the question is: To what extent should we be concerned with how we conduct ourselves ethically as professionals?

New urgency

It should be apparent that the need for a more rigorous application of ethical principles throughout society has taken on new urgency in recent years, as major crises precipitated by unethical actions have rocked our economy, our physical infrastructure and our governments. It seems that every day there are new media reports about scandals in both the public and private sectors. Although most everyone in our society would agree, if questioned, that they expect all members of society to uphold commonly understood standards of good ethical behaviour, it is clear from the empirical evidence that this is neither as common nor as easy as should be the case.

Engineering ethics in practice



Ethical considerations can be every bit as important to P.Engs as technical expertise. Despite some engineering failures and the increased worry about liability, the profession appears to be taking its ethics seriously. But as this author suggests, it can never afford to become complacent.

While no profession or field of activity can afford to be complacent about its ethical standards, Canadian professional engineers can take pride in the fact that ethical responsibility has long been recognized to be critically important to our profession. PEO was first given the authority to pass by-laws to define a Code of Ethics for professional engineers through a 1947 amendment to the *Professional Engineers Act* and a well-defined Code of Ethics was adopted by membership referendum and approved by the Attorney General the next year.

Aside from the altruistic goals of good ethical behaviour by engineers and our historic commitments, there are also many tangible and practical reasons for engineers to uphold high ethical standards. One important reason for applying the highest possible ethical standards to our professional practices is the relationship between applied practical ethics and the objective of controlling professional and business risk and liability.

While individuals have practised managing risk ever since we emerged from the forests, the formal discipline of risk

management is a relatively new one that developed as an adjunct of the insurance industry in the post-Second World War period. The Risk and Insurance Management Society (www.rims.org) was established in 1950 by companies and public institutions that were major purchasers of insurance. These organizations had begun to recognize that they could significantly lower the cost of both insurance and uninsured losses by systematically analyzing every aspect of their businesses, with the goal of uncovering, controlling or mitigating all potential risks. One potential major risk, of course, is the cost of poor engineering design.

Good initial engineering design is therefore a critical first step to controlling the costs related to risk management in almost every aspect of our built world. Whether we are discussing airports, buildings, turbines or telecommunications centres, the high quality and reliable work of engineers is a crucial factor in limiting risk costs associated with any product or system. The professional engineers’ professional seal is a physical manifestation of the personal responsibility engineers take for building

quality control into our designs and our dedication to the safety of our clients and society as a whole. We should all remember, however, that we are legally responsible for our engineering work, regardless of whether we have stamped it.

Yet despite all the best engineering, and the greatest amount of due diligence and foresight, things can and do go wrong, and we are always faced with potential liability. Much has been written about the significance of engineering liability and the consequences of failure of an engineered component or entire system. It is clear to all of us in the profession that in a world characterized by ever larger and more imposing projects, a world bound ever more tightly together by intricate, interconnected networks, the consequences of engineering failure are increasingly potentially catastrophic.

The *Professional Engineers Act* outlines in detail our legal and professional duties and our consequential professional liabilities. The Act, as well as numerous government and industry statutes and regulations, stipulate what society expects professionally from professional engineers. In reality, however, these professional standards stipulate only a portion of society's expectations. Society also has implied expectations for our conduct as professionals that, when violated, can potentially result in additional civil and even criminal liability.

The reality is that what society expects from engineers, who are granted powers and authority that can affect many others in many ways, cannot be fully detailed in a short article. The Golden Rule—that we should “do unto others as we would have them do unto us”—is a good starting point, but is hardly where responsibilities end. When we offer our services to our employer, or to society, we are actually offering two things: a set of technical skills, and a commitment that we will apply those skills to the best of our ability. It is expected that our professional expertise will be applied in the most responsible and judicious manner possible in whatever role we assume as engineers.

Reputation as asset

There is one important reality of which engineers must be particularly cognizant:

Unlike most professionals, engineers rarely get the opportunity to deal directly with the people who are the ultimate consumers of their services. The consequential invisibility and anonymity of the relationship between engineers and those we serve places even a higher onus of responsibility on us. The fact that many engineers regularly offer expert services that the public cannot easily understand compounds our distance from our “clients”. As a result, the only way society can evaluate us, and have the assurance that we will reliably protect its interests, is by the personal and professional reputations we have earned over an extended period. We establish this reputation by the way we treat our peers, our customers and, in fact, all the people we deal with. The acid test of how we are valued then becomes how ethical the people with whom we deal consider us, based on their experience in working with us day to day.

It is for this reason that the personal and professional reputation that precedes and follows us is our most valuable professional asset, as important as any technical skill that we have mastered. For this practical reason, just as engineers need continually to develop their technical skills, they need also to be mindful of and continually attend to developing their ethical standards as a key aspect of their professional lives. Indeed, it is our awareness of this key aspect, as well as of the potential risks and liabilities inherent in the work we do, that helps us focus on creating the best engineering designs. ❖

Leon Wasser, P.Eng., MBA, earned his Bachelor of Engineering (Civil) at McGill University, and has held management and engineering positions at York University, Defence Construction Canada, Atomic Energy of Canada and the ECE Group. He lectures in applied business ethics and Canadian business history at the Schulich School of Business, York University.