Canons of Ethics for Engineers: 80 Years of Change

An Online Continuing Education Course for Engineers

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Credit: 1 Hours / 1 PDH / 1 CPD

Canons of Ethics for Engineers: 80 Years of Change

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Introduction

There are several behavioral standards, called codes of conduct, specific to engineers.

Engineers and other professionals are subject to behavior standards set and enforced by:

- Federal, state, or local regulations (laws and rules)
- Employers (corporate policy, office standards, employment agreements, etc.)
- Professional organizations (NSPE, NCEES, ASCE, etc.)

This course focuses on the most widely adopted standard from a professional organization, called the "Code of Ethics for Engineers" (Code of Ethics) by the National Society of Professional Engineers (NSPE). This code includes six fundamental canons, five rules of practice, and nine professional obligations, as outlined later in this course.

A canon is a principle of professional conduct. Canons are based on agreed moral principles. Ethics is the study and application of these moral principles.

In 1946, engineering societies coordinated and jointly prepared and published the Canons of Ethics for Engineers. This was the founding document for the current NSPE Code of Ethics for Engineers. The 1946 text is provided in this course.

This course gives a chronology of the changes in the canons from 1946 to today. Insights are provided as to the causes of these changes, such as cultural values, technological advancements, scientific discoveries, political atmosphere, and evolving traditions.

Reflections are provided on how the code of ethics may further evolve to address current issues such as the use of artificial intelligence in design, remote collaboration, social media, and technological advancements.

Early History of Ethics for Engineers

The following is the early history and context for the development of the Canons of Ethics for Engineers.

1800's

In the 1800s, engineering became a distinct and organized profession. Engineers began to influence early building codes and federal regulations, especially on matters of safety, such as steam engines, elevators, and fire protection for buildings. Topics on professional ethics, which historically were applied to doctors, lawyers, and ministry, started to be discussed in the context of engineers.

Early 1900s

Several engineering societies were formed in the early 1900s. These societies often made statements about professional conduct. These statements focused mostly on the relationship between engineers and clients. In this way, engineers were viewed similar to lawyers.

In 1907, the Quebec Bridge collapsed, killing 75 people. Engineering design flaws were identified as the primary cause. This led to the creation of the Iron Ring ceremony in Canada, officially called the Ritual of the Calling of an Engineer. An oath is made at the ceremony, and an iron ring is worn on the little finger as a symbol of the obligations and ethics associated with being an engineer.

Figure 1: Example iron ring from an engineer.
Source: commons.wikimedia.org/wiki/File:Canadian_Engineer_Iron_Ring.jpg, --PCStuff, CC-BY-SA-2.5

Also in the early 1900s, many states began developing engineering licensing laws and rules. In 1907, Wyoming was the first state to enact licensure laws. Montana was the last state in 1947.

in 1914, the American Society of Civil Engineers (ASCE) issued a Code of Ethics, which addressed issues like truthful billing, not maliciously injuring a competitor's reputation, and avoiding underbidding. The code viewed the engineer's primary obligation as being a "faithful agent or trustee" for their client.
In general, ethics statements in the early 1900s made little mention of an engineer's duty to public safety and welfare. The codes seem to address the issues from rapid industrialization, such as ensuring engineers receive a fair wage, avoiding manipulative advertising, avoiding non-engineers doing engineering work, and choosing engineering firms based on qualifications and not the lowest price.
In 1935, a draft of the NSPE Code of Ethics was presented in the society's publication "The American Engineer" as a suggestion for member consideration, but not as an officially adopted document.

1946

In 1946, a joint committee of technical engineering societies sponsored by the Engineers' Council for Professional Development (ECPD), now the Accreditation Board for Engineering and Technology (ABET), prepared the "Canons of Ethics for Engineers", consisting of 28 canons. The NSPE Board approved the document, solidifying it as the most widely accepted code of ethics for engineers, a status that holds to this day.

1947

In January 1947, the Canons of Ethics for Engineers was published in The American Engineer. The document included the major elements of the current fundamental canon, "have due regard for the safety of life and health of the public". This was a significant step to acknowledge a primary responsibility to the public. Engineers began to see their role as a confidant of clients/employers AND a protector of people's safety and health.

In November 1947, a slightly modified version of the Canons of Ethics for Engineers was published in The American Engineer.

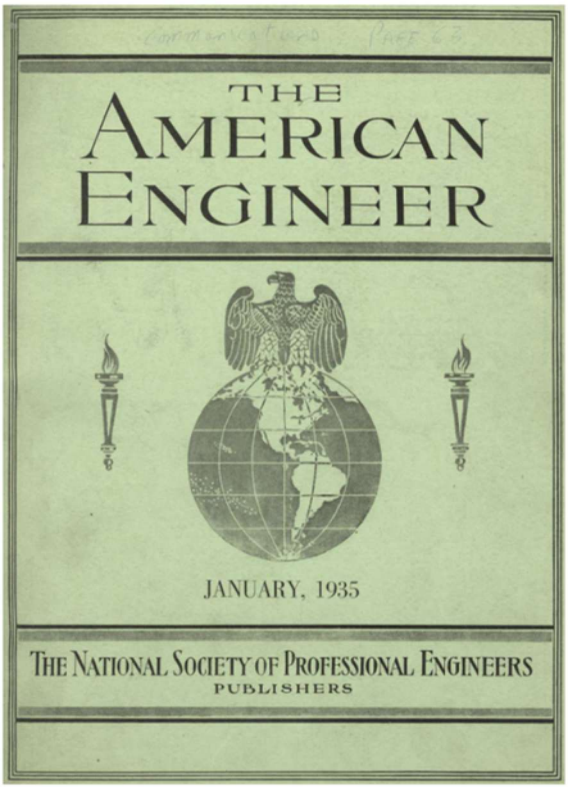

Figure 2: Early issue of The American Engineer, a publication of NSPE, which in 1947 included the Canons of Ethics for Engineers.
Source: www.nspe.org/sites/default/files/resources/pdfs/NSPE75thAnniversary.pdf

1946 Canon of Ethics for Engineers

The statement was developed and promulgated by the Engineers' Council for Professional Development as a standard for all national engineering society groups.

Forward

Honesty, justice, and courtesy form a moral philosophy which, associated with mutual interest among men, constitutes the foundation of ethics. The engineer should recognize such a standard, not in passive observance, but as a set of dynamic principles guiding his conduct and way of life. It is his duty to practice his profession according to these Canons of Ethics.

As the keystone of professional conduct is integrity, the engineer will discharge his duties with fidelity to the public, his employers, and clients, and with fairness and impartiality to all. It is his duty to interest himself in public welfare and to be ready to apply his special knowledge for the benefit of mankind. He should uphold the honor and dignity of his profession and also avoid association with any enterprise of questionable character. In his dealings with fellow engineers, he should be fair and tolerant.

Professional Life

Sec. 1. The engineer will cooperate in extending the effectiveness of the engineering profession by interchanging information and experience with other engineers and students and by contributing to the work of engineering societies, schools, and the scientific and engineering press.

Sec. 2. He will not advertise his work or merit in a self-laudatory manner, and he will avoid all conduct or practice likely to discredit or do injury to the dignity and honor of his profession.

Relations with the Public

Sec. 3. The engineer will endeavor to extend public knowledge of engineering and will discourage the spreading of untrue, unfair, and exaggerated statements regarding engineering.

Sec. 4. He will have due regard for the safety of life and health of the public and employees who may be affected by the work for which he is responsible.

Sec. 5. He will express an opinion only when it is founded on adequate knowledge and honest conviction while he is serving as a witness before a court, commission, or other tribunal.

Sec. 6. He will not issue ex parte statements, criticisms, or arguments on matters connected with public policy which are inspired or paid for by private interests, unless he indicates on whose behalf he is making the statement.

Sec. 7. He will refrain from expressing publicly an opinion on an engineering subject unless he is informed as to the facts relating thereto.

Relations with Clients and Employers

Sec. 8. The engineer will act in professional matters for each client or employer as a faithful agent or trustee.

Sec. 9. He will act with fairness and justice between his client or employer and the contractor when dealing with contracts.

Sec. 10. He will make his status clear to his client or employer before undertaking an engagement if he may be called upon to decide on the use of inventions, apparatus, or any other thing in which he may have a financial interest.

Sec. 11. He will guard against conditions that are dangerous or threatening to life, limb, or property on work for which he is responsible, or if he is not responsible, will promptly call such conditions to the attention of those who are responsible.

Sec. 12. He will present clearly the consequences to be expected from deviations proposed if his engineering judgment is overruled by a nontechnical authority in cases where he is responsible for the technical adequacy of engineering work.

Sec. 13. He will engage, or advise his client or employer to engage, and he will cooperate with other experts and specialists whenever the client's or employer's interests are best served by such service.

Sec. 14. He will disclose no information concerning the business affairs or technical processes of clients or employers without their consent.

Sec. 15. He will not accept compensation, financial [illegible]herwise, from mor[illegible]an one interested party for the same service, or for services pertaining t[illegible]onsent of all interested parties.

Sec. 16. He will n[illegible] contractors or other parties dealing w[illegible]s responsible.

Sec. 17. He will no[illegible]mpetitive work for which he is employ[illegible]loyer.

Sec. 18. He will pron[illegible] that may compete with or affect the bu[illegible]ny business to affect his decision reg[illegible] may be called upon to perform.

Relations with Engine[illegible]

Sec. 19. The engineer wi[illegible]ctively and individually from misrepresentation [illegible]

Sec. 20. He will take care that credit for engineering work is given to those to whom credit is properly due.

Sec. 21. He will uphold the principle of appropriate and adequate compensation for those engaged in engineering work, including those in subordinate capacities, as being in the public interest and maintaining the standards of the profession.

Sec. 22. He will endeavor to provide opportunity for the professional development and advancement of engineers in his employ.