
Ethical Problems of Engineers in Industry

Employer Authority and Employee Duties

- When an offer of employment is accepted:
 - A contract is signed
 - The Engineer agrees to use his knowledge to further the companies goals
 - The Employer agrees to treat the engineer in a professional manner and also acquires the authority to direct the engineer
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Employer Authority and Employee Duties

- The employer has management authority to direct the resources of the company
 - The engineer has technical authority to exercise the special and skilled acquired through university education and practical engineering experience
 - In an efficient firm, the distinction between authority shall be well defined and both parties will have mutual respect for one another.
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Employer Authority and Employee Duties

- Engineers are responsible for evaluating the technical feasibility of a project
 - Employers has the ultimate authority on whether a course of action shall be undertaken
 - Over the length of an engineers career, their may be times where management asks him to perform an unethical task. Under no circumstance should an engineer compromise his professional ethics.
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Employer Authority and Employee Duties

- The following examines the different types of conflicting actions that may rise:
 - Illegal Actions
 - Actions contrary to the code of ethics
 - Actions Contrary to the conscience of the engineer.
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Employer Authority and Employee Duties

■ Illegal Actions:

- Actions that would require the engineer to break a criminal, civil or business law.
 - No manager can ask any individual to break the law
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Employer Authority and Employee Duties

- Actions contrary to the code of ethics:
 - While not illegal, certain actions may be considered unethical under the Professional Act of engineering
 - The Engineer should advise management of the appropriate section of the code of ethics
 - An employer cannot ask an engineer to perform acts that are contrary to the code of ethics
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Employer Authority and Employee Duties

- Actions contrary to the conscience of the Engineer:
 - Most difficult situation
 - Not illegal
 - Not against code of ethics
 - Contrary to the engineers ethics
 - Decision must be examined and consequences must be weighed
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Generic code of Ethics

- Although most of the Engineering code of ethics address similar issues ,it is important that you familiarize yourself with the code of ethics where you practice.
 - The engineering code of practice in QUEBEC are listed in our WebCt and there is a link to the OIQ website where these codes are presented in both French and English .
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Generic Engineering code of Ethics and Practice

Code of Ethics for Engineers

**Engineering is an important and learned profession.
as members of this profession,**

- Engineers are expected to exhibit the highest standards of honesty and integrity.
 - Engineering has a direct and vital impact on the quality of life for all people.
 - Accordingly, the services provided by engineers require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public health, safety, and welfare
 - Engineers must perform under a standard of professional behavior that requires adherence to the highest principles of ethical conduct
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Code of Ethics for Engineers

Engineers, in the fulfillment of their professional duties, shall:

- 1. Hold paramount the safety, health and welfare of the public.
 - 2. Perform services only in areas of their competence.
 - 3. Issue public statements only in an objective and truthful manner.
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Code of Ethics for Engineers

Engineers, in the fulfillment of their professional duties, shall:

- 4. Act for each employer or client as faithful agents or trustees.

 - 5. Avoid deceptive acts.

 - 6. Conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession
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Code of Ethics for Engineers

■ II. Rules of Practice

- 1. Engineers shall hold paramount the safety, health, and welfare of the public.
 - a. If engineers' judgment is overruled under circumstances that endanger life or property, they shall notify their employer or client and such other authority as may be appropriate.
 - b. Engineers shall approve only those engineering documents that are in conformity with applicable standards.
 - c. Engineers shall not reveal facts, data, or information without the ~~prior consent of the client or employer except as authorized or~~ required by law or this Code.

Code of Ethics for Engineers

- d. Engineers shall not permit the use of their name or associate in business ventures with any person or firm that they believe are engaged in fraudulent or dishonest enterprise.
 - e. Engineers shall not aid or abet the unlawful practice of engineering by a person or firm.
 - f. Engineers having knowledge of any alleged violation of this Code shall report thereon to appropriate professional bodies and, when relevant, also to public authorities, and cooperate with the proper authorities in furnishing such information or assistance as may be required
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Code of Ethics for Engineers

- 2. Engineers shall perform services only in the areas of their competence.
 - a. Engineers shall undertake assignments only when qualified by education or experience in the specific technical fields involved.
 - b. Engineers shall not affix their signatures to any plans or documents dealing with subject matter in which they lack competence, nor to any plan or document not prepared under their direction and control.
 - c. Engineers may accept assignments and assume responsibility for coordination of an entire project and sign and seal the engineering documents for the entire project, provided that each technical segment is signed and sealed only by the qualified engineers who prepared the segment.
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Code of Ethics for Engineers

3. Engineers shall issue public statements only in an objective and truthful manner.
 - a. Engineers shall be objective and truthful in professional reports, statements, or testimony. They shall include all relevant and pertinent information in such reports, statements, or testimony, which should bear the date indicating when it was current.
 - b. Engineers may express publicly technical opinions that are founded upon knowledge of the facts and competence in the subject matter.
 - c. Engineers shall issue no statements, criticisms, or arguments on technical matters that are inspired or paid for by interested parties, unless they have prefaced their comments by explicitly identifying the interested parties on whose behalf they are speaking, and by revealing the existence of any interest the engineers may have in the matters
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Code of Ethics for Engineers

4. Engineers shall act for each employer or client as faithful agents or trustees.
 - a. Engineers shall disclose all known or potential conflicts of interest that could influence or appear to influence their judgment or the quality of their services.
 - b. Engineers shall not accept compensation, financial or otherwise, from more than one party for services on the same project, or for services pertaining to the same project, unless the circumstances are fully disclosed and agreed to by all interested parties.
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Code of Ethics for Engineers

- c. Engineers shall not solicit or accept financial or other valuable consideration, directly or indirectly, from outside agents in connection with the work for which they are responsible.
- d. Engineers in public service as members, advisors, or employees of a governmental or quasi-governmental body or department shall not participate in decisions with respect to services solicited or provided by them or their organizations in private or public engineering practice.
- e. Engineers shall not solicit or accept a contract from a governmental body on which a principal or officer of their organization serves as a member

Code of Ethics for Engineers

- 5. Engineers shall avoid deceptive acts.

 - a. Engineers shall not falsify their qualifications or permit misrepresentation of their or their associates' qualifications. They shall not misrepresent or exaggerate their responsibility in or for the subject matter of prior assignments. Brochures or other presentations incident to the solicitation of employment shall not misrepresent pertinent facts concerning employers, employees, associates, joint ventures, or past accomplishments.
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Code of Ethics for Engineers

- b. Engineers shall not offer, give, solicit or receive, either directly or indirectly, any contribution to influence the award of a contract by public authority, or which may be reasonably construed by the public as having the effect of intent to influencing the awarding of a contract. They shall not offer any gift or other valuable consideration in order to secure work. They shall not pay a commission, percentage, or brokerage fee in order to secure work, except to a bona fide employee or bona fide established commercial or marketing agencies retained by them.

Code of Ethics for Engineers

III. Professional Obligations

1. Engineers shall be guided in all their relations by the highest standards of honesty and integrity.
 - a. Engineers shall acknowledge their errors and shall not distort or alter the facts.
 - b. Engineers shall advise their clients or employers when they believe a project will not be successful.

Code of Ethics for Engineers

- c. Engineers shall not accept outside employment to the detriment of their regular work or interest. Before accepting any outside engineering employment they will notify their employers.
 - d. Engineers shall not attempt to attract an engineer from another employer by false or misleading pretenses.
 - e. Engineers shall not promote their own interest at the expense of the dignity and integrity of the profession
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Code of Ethics for Engineers

2. Engineers shall at all times strive to serve the public interest.
 - a. Engineers shall seek opportunities to participate in civic affairs; career guidance for youths; and work for the advancement of the safety, health, and well-being of their community.
 - b. Engineers shall not complete, sign, or seal plans and/or specifications that are not in conformity with applicable engineering standards. If the client or employer insists on such unprofessional conduct, they shall notify the proper authorities and withdraw from further service on the project.
 - c. ~~Engineers shall endeavor to extend public knowledge and appreciation of engineering and its achievements.~~

Code of Ethics for Engineers

3. Engineers shall avoid all conduct or practice that deceives the public.
 - a. Engineers shall avoid the use of statements containing a material misrepresentation of fact or omitting a material fact.
 - b. Consistent with the foregoing, engineers may advertise for recruitment of personnel.
 - c. Consistent with the foregoing, engineers may prepare articles for the lay or technical press, but such articles shall not imply credit to the author for ~~work performed by others~~
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Code of Ethics for Engineers

4. Engineers shall not disclose, without consent, confidential information concerning the business affairs or technical processes of any present or former client or employer, or public body on which they serve.
 - a. Engineers shall not, without the consent of all interested parties, promote or arrange for new employment or practice in connection with a specific project for which the engineer has gained particular and specialized knowledge.
 - b. Engineers shall not, without the consent of all interested parties, participate in or represent an adversary interest in connection with a specific project or proceeding in which the engineer has gained particular specialized knowledge on behalf of a former client or employer

Code of Ethics for Engineers

- 5. Engineers shall not be influenced in their professional duties by conflicting interests.
 - a. Engineers shall not accept financial or other considerations, including free engineering designs, from material or equipment suppliers for specifying their product.
 - b. Engineers shall not accept commissions or allowances, directly or indirectly, from contractors or other parties dealing with clients or employers of the engineer in connection with work for which the engineer is responsible
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Code of Ethics for Engineers

6. Engineers shall not attempt to obtain employment or advancement or professional engagements by untruthfully criticizing other engineers, or by other improper or questionable methods.
 - a. Engineers shall not request, propose, or accept a commission on a contingent basis under circumstances in which their judgment may be compromised.
 - b. Engineers in salaried positions shall accept part-time engineering work only to the extent consistent with policies of the employer and in accordance with ethical considerations.
 - c. Engineers shall not, without consent, use equipment, supplies, laboratory, or office facilities of an employer to carry on outside private practice
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Code of Ethics for Engineers

7. Engineers shall not attempt to injure, maliciously or falsely, directly or indirectly, the professional reputation, prospects, practice, or employment of other engineers. Engineers who believe others are guilty of unethical or illegal practice shall present such information to the proper authority for action.
 - a. Engineers in private practice shall not review the work of another engineer for the same client, except with the knowledge of such engineer, or unless the connection of such engineer with the work has been terminated
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Code of Ethics for Engineers

- b. Engineers in governmental, industrial, or educational employ are entitled to review and evaluate the work of other engineers when so required by their employment duties.
 - c. Engineers in sales or industrial employ are entitled to make engineering comparisons of represented products with products of other suppliers
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Code of Ethics for Engineers

8. Engineers shall accept personal responsibility for their professional activities, provided, however, that engineers may seek indemnification for services arising out of their practice for other than gross negligence, where the engineer's interests cannot otherwise be protected.
 - a. Engineers shall conform with state registration laws in the practice of engineering.
 - b. Engineers shall not use association with a non-engineer, a corporation, or partnership as a "cloak" for unethical acts.
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Code of Ethics for Engineers

9. Engineers shall give credit for engineering work to those to whom credit is due, and will recognize the proprietary interests of others.
- a. Engineers shall, whenever possible, name the person or persons who may be individually responsible for designs, inventions, writings, or other accomplishments.
 - b. Engineers using designs supplied by a client recognize that the designs remain the property of the client and may not be duplicated by the engineer for others without express permission
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Code of Ethics for Engineers

- C, Engineers, before undertaking work for others in connection with which the engineer may make improvements, plans, designs, inventions, or other records that may justify copyrights or patents, should enter into a positive agreement regarding ownership.
 - d. Engineers' designs, data, records, and notes referring exclusively to an employer's work are the employer's property. The employer should indemnify the engineer for use of the information for any purpose other than the original purpose.
 - e. Engineers shall continue their professional development throughout their careers and should keep current in their specialty fields by engaging in professional practice, participating in continuing education courses, reading in the technical literature, and attending professional meetings and seminars.
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Ethical Problems of Engineers in Management

Adherence to the Provincial act

- As a manager, you have a legally responsibility that all personnel performing work in the field of engineering is a registered and qualified engineer.
 - Under no circumstance is it acceptable for a manager to employ an individual that is not appropriately registered as a qualified and certified engineer
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Adherence to the Provincial act:

- Failure to adhere to the provincial guidelines may result in fines or incarceration
 - These guidelines have been enacted to protect the public and ensure the highest safety protocol
 - It is in the best interest of the public to register each engineer to certify their skills and knowledge
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Adherence to the Provincial act

- The only scenario in which unlicensed personnel may work on a project is if the individual is under the direct supervision of a certified engineer
 - This engineer takes on the responsibility of ensuring the safety and overall reliability of the project and therefore can be liable for the outcome
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Adherence to the Provincial act

- As a manager, it is your duty to rectify any unlawful situation that may arise under your supervision
 - This might require you to “ruffle a few feathers” but in no way may it be ignored
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Adherence to the Provincial act

- Another type of infringement is related to employee titles.
 - A person who carries engineer in his job title must be a licensed engineer.
 - If he is not registered, you must resolve the ambiguity in his title and remove the word “engineer”.
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Adherence to the Provincial act

- This title may mislead possible clients into thinking they are working with a registered and certified engineer
 - Although this rule may seem trivial, it protects the interest of qualified engineers and of the public. It is illegal to misuse a title and is punishable by fines or possible incarceration
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Promoting an Ethical Workplace

- An essential role of a manager is the encouragement of an ethical climate within an organization
 - Although it is every individual's responsibility to conduct themselves in an ethical manner, the manager ensures that the system is working
 - An ethical working environment must share the same rules, attitudes and ethical commitments
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Promoting an Ethical Workplace

- As a manager, you must constantly enforce ethical and legal practices regardless of their disadvantages.
 - The development of company wide programs may be enacted in order to promote certain important ideals.
 - Example: Quickie Design and Texas Instruments.
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The four features of an ethical climate:

- The awareness of ethical issues
 - That all employee are educated on proper ethical guidelines and issues
 - Implementing code of ethics/regulations
 - Design a code of conduct and implement ethical programs
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The four features of an ethical climate:

- Management sets the ethical standard and enforces
 - Executive management sets the moral tone of the company
 - Procedures for problem resolution and conflict
 - Managers aid with conflict procedures and problem resolution
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Managing conflict

- A key to ensuring the efficiency of your organization is the swift resolution of any conflicts or value disagreements
 - It is a manager's responsibility to maintain a positive and ethical work environment
 - This may entail a manager to use authoritarian threats in order to correct a situation, however abuse of such powers do have negative impacts
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Managing conflict

- If the manager provides a brief explanation to his employees on his course of action, it strengthens the manager-subordinate relationship
 - However if a manager simply orders his employees to perform certain tasks, this blind trust may result in a deterioration of their working relationship
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Conflict types

- Conflicts over schedules
 - Conflicts over department priorities
 - Conflict over personnel resources
 - Conflicts over technical issues
 - Conflict over administrative procedures
 - Personality conflicts
 - Conflicts over resources (money, raw material etc)
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The four principles of conflict resolution

- People: Separate the people from the problem.
 - Interests: focus on interests, not positions.
 - Options: Generate a variety of possibilities before deciding what to do
 - Criteria: Insist that the result be based on some objective standard
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Discrimination in engineering employment:

- As a manager, it is your ethical duty to ensure that there is no discrimination when evaluating an employee's work
 - . It is unethical to discriminate any individual on the basis of their race, national origin, color, religion, sex, age or physical disability
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Discrimination in engineering employment:

- As in the charter of rights, every person has the right to be treated fairly and equitably.
 - Although discrimination is on the decline, certain underrepresented groups have struggled
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Discrimination in engineering employment:

- Although women outnumber men in the general population, they are a small minority in the engineering profession
 - This does not mean that they should receive preferential treatment, it only requires the manager to treat them fairly and equally amongst their male counterparts.
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Hiring and Firing:

- As an engineer and manager, you will be responsible for the hiring and dismissal practices of the engineering staff
 - In order to fully understand the procedures, we must examine three key aspects: employment contracts, terminating employment for just cause and wrongful dismissal.
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Hiring and Firing:

- The most practical way of employment is through a contractual agreement
 - This ensures that both parties do not fall victim to uncertainty and provides security for both the employee and the firm
 - The most common details deal with duration (fixed or indefinite), the remuneration, raises, royalties, vacations, statutory holidays, rules that would constitute just cause for dismissal, severance pay and other payments
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Hiring and Firing:

- If for any reason a firm has any questions regarding proper hiring practices they should consult the NSPE Guidelines to Professional Employment for Engineers and Scientists (in Appendix F). This guide provides extensive explanations for all the various topics/problems that may arise.
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Hiring and Firing:

- When dealing with dismissal, a manager must ensure that proper procedures are followed for both legal and contractual agreements. An employee may only be dismissed for *just cause*.
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Hiring and Firing:

- The following defines just cause:
 - Serious misconduct
 - Habitual neglect of duty
 - Serious incompetence
 - Conduct incompatible with his or her duties or prejudicial to the company's business
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Hiring and Firing:

- Just Cause (continued)
 - Willful disobedience to a lawful and reasonable order of a superior in a matter of substance
 - Theft, fraud, Dishonesty
 - Continual insolence and insubordination
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Hiring and Firing:

- Just Cause (continued)
 - Excessive absenteeism despite corrective counseling
 - Permanent illness
 - Inadequate job performance over an extended period as a result of drug or alcohol abuse and failure to accept or respond to the company's attempt to rehabilitate
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Hiring and Firing:

- In some occasions an employee (without contract) may be dismissed without just cause. In these circumstances, the employee might take legal action in a wrongful dismissal suit. It is advisable that the company consult a legal expert before the dismissal to ensure proper protection against any such actions.
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- **Principles of Ethical Conduct in Engineering Practice Under the North American Free Trade Agreement**

Principles of Ethical Conduct in Engineering Practice Under the North American Free Trade Agreement

- *Prepared by a team of engineers and advisors from Canada, Mexico and the USA under the direction of the Murdough Center for Engineering Professionalism, Texas Tech University. Supported by a grant from the National Science Foundation.*
 - **APPROVED** by the NAFTA Forum, at Puerto Vallarta, Mexico January 28, 1995
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Principles of Ethical Conduct in Engineering Practice Under the North American Free Trade Agreement

- Engineers shall hold paramount the health, safety and welfare of the public in the practice of their profession.
 - Engineers shall practice only in their areas of competence, in a careful and diligent manner and in conformance with standards, laws, codes, and rules and regulations applicable to engineering practice.
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Principles of Ethical Conduct in Engineering Practice Under the North American Free Trade Agreement

- Engineers shall examine the societal and environmental impact of their actions and projects, including the wise use
 - Engineers shall issue public statements only in an objective and truthful manner. If representing a particular interest
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Principles of Ethical Conduct in Engineering Practice Under the North American Free Trade Agreement

- Engineers shall examine the societal and environmental impact of their actions and projects, including the wise use and conservation of resources and energy, in order to make informed recommendations and decisions.
 - Engineers shall issue public statements only in an objective and truthful manner. If representing a particular interest, the engineer shall clearly identify that interest.
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Principles of Ethical Conduct in Engineering Practice Under the North American Free Trade Agreement

- Engineers shall sign and take responsibility for all engineering work which they prepared or directly supervised. An engineer may sign work prepared by others, but only with their knowledge and after sufficient review and verification to justify taking responsibility for that work.
- Engineers shall act as faithful agents for their employers or clients and maintain confidentiality; they shall avoid conflicts of interest whenever possible,

disclosing unavoidable conflicts.

Principles of Ethical Conduct in Engineering Practice Under the North American Free Trade Agreement

- Engineers shall ensure that a client is aware of the engineer's professional concerns regarding particular actions or projects, and of the consequences of engineering decisions or judgments that are overruled or disregarded. An employee engineer shall initially express those concerns to the employer.
 - Engineers shall appropriately report any public works, engineering decisions or practice that endanger the health, safety and welfare of the public. When, in an engineer's judgment, a significant risk to the public remains unresolved, that engineer may ethically make the concerns known publicly.
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Principles of Ethical Conduct in Engineering Practice

Under the North American Free Trade Agreement

- Engineers shall commit to life-long learning, strive to advance the body of engineering knowledge and should encourage other engineers to do likewise.
 - Engineers shall promote responsibility, commitment, and ethics both in the education and practice phases of engineering; they should enhance society's awareness of engineers' responsibilities to the public and encourage the communication of these principles of ethical conduct among engineers.
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Ref.

**Andrews and Kemper, Canadian
Professional Engineering Practice and
Ethics, 2nd Edition, Saunders, ISBN 0-
7747-3501-5**

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- This presentation is put together from, course books , other presentations as well as various websites in the forms of text, photos, audio and video clips.
 - All the references will be given in the general reference section on the web Ct
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