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Geo-Omaha 2023 Professional Engineering Ethics

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Professional Engineering Ethics

Ethics by a lawyer????



Professional Engineering Ethics



A yellow hard hat is positioned on the left side of the frame. To its right is a laptop, with its keyboard and trackpad visible. In the foreground, there are drafting tools, including a black pen and a pencil, resting on a white surface. The background is a plain, light-colored wall.

Professional Engineering Ethics

- The practice of Engineering is regulated to safeguard the health, safety and welfare of the public.
- Most states have regulatory boards which grant licenses and mandate ethical behavior.
- The board may adopt and promulgate rules and regulations to require ethical behavior through a code of practice, ethics or conduct.
- Trade Associations also have a Code of Ethics that are required of Members.



Professional Engineering Ethics

- Cover the reoccurring Ethical requirements
- Hypotheticals and Case Studies

A yellow hard hat is on the left side of the image. In the center, a laptop is partially visible. On the bottom left, there are drafting tools, including a compass and a pencil, resting on a white surface. The background is a light blue gradient.

Professional Engineering Ethics

- American Society of Civil Engineers
 - First Adopted in 1914
 - Expectation that members follow this Code when acting as professionals
 - Updated and Reformatted in 2020
 - <https://www.asce.org/career-growth/ethics/code-of-ethics>

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Professional Engineering Ethics

- American Society of Civil Engineers
 - Categories of Code of Ethics (2020)
 - Society
 - Natural and Built Environment
 - Profession
 - Clients and Employers
 - Peers

A yellow hard hat is on the left side of the image. In the center, a laptop is partially visible. In the foreground, a black pen lies on a white surface with faint blueprints. The background is a soft-focus white wall.

Professional Engineering Ethics

- Reoccurring Areas
 - Competence
 - Conflict of Interest
 - Confidentiality
 - Professional Relationships or Responsibility
 - Compliance with Laws and Standards
 - Professional Conduct

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Professional Engineering Ethics

- Legislative definition of Good Ethical Character
- Good ethical character means such character as will enable a person to discharge the fiduciary duties of a professional engineer to his or her client and to the public for the protection of the public's health, safety, and welfare.

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Professional Engineering Ethics

Fiduciary Duty:

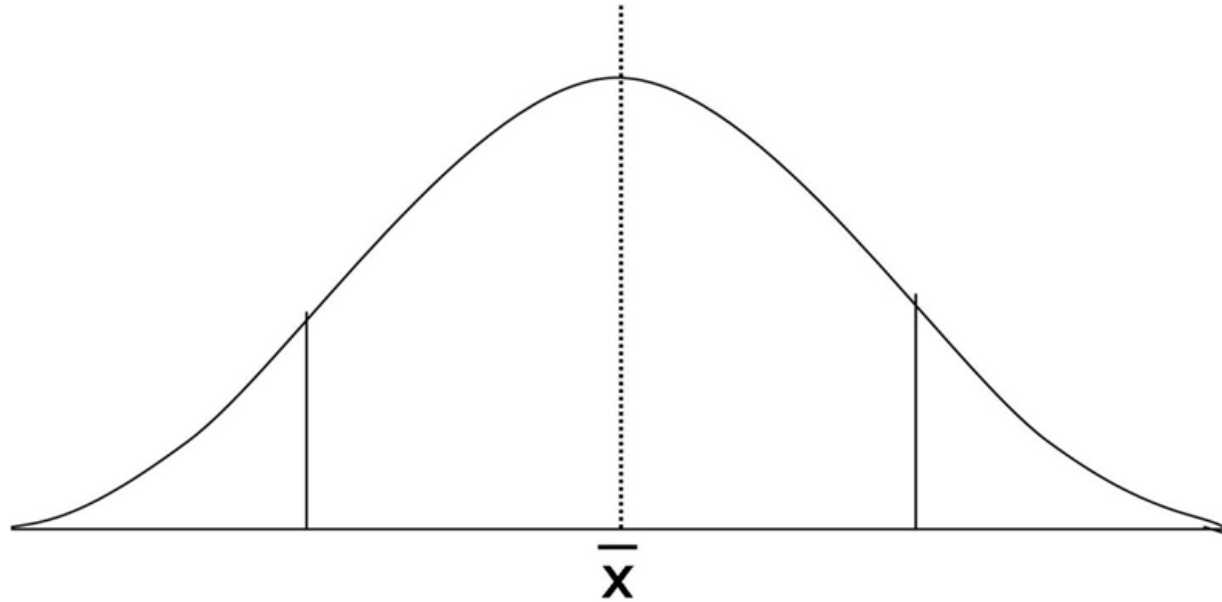
“A duty to act with the highest degree of honesty and loyalty toward another person and in the best interests of the other person (such as the duty that one partner owes to another).”

Black’s Law Dictionary - 11th Edition

For example, directors have a duty not to engage in self-dealing to further their own personal interests rather than the interests of the corporation.

Competence

PE “shall act with reasonable care and competence and shall apply the technical knowledge and skill ordinarily applied by professional engineers of good standing in the same locality” = common law professional standard of care.





Competence

- PE may rely on advice of other professionals regarding interpretation of laws or regulations, but PE cannot knowingly violate those laws.
- PE should only undertake services when they or their consultants are qualified in the specific technical areas.
- PE shall not sign, seal or attest to any work pertaining any technical discipline or specialty that he or she does not have training or experience in.



Conflict of Interest

- PE cannot accept compensation for their services from more than one party on a project unless the circumstances are fully disclosed and agreed upon **in writing**.
- If PE has financial interest in contractor or consultant, it must be disclosed with full detail to client and/or employer.
- PE cannot solicit or accept **compensation** from suppliers, contractors, or sub-consultants in return for specifying or endorsing a product.
- PE when acting by agreement as (1) the independent interpreter of construction contract documents, studies and reports, or (2) the judge of contract performance, shall render decisions impartially.



Confidentiality

- PE shall not disclose confidential information of the client unless consented to by all interested parties.
- What is confidential?
 - Best practice is to send drafts to client for review ahead of time.



Professional Responsibility/ Peers

- PE should express professional opinions truthfully and only founded on adequate knowledge and honest conviction.
- PE making public statements on questions of engineering, PE needs to disclose he or she is being compensated for such statements.
- Must accurately represent qualifications to client and the scope of their responsibility for projects referenced.
- May not take credit for another professional engineer's work.
- PE **must** report to the governing board if he or she has knowledge of violation of the Code of Practice or Ethics by another PE.
 - However, the reporting PE cannot become the subsequent engineer of record for the Project from which the Complaint arises.



Compliance with Laws/ Society

- PE may rely on advice of other professionals regarding interpretation of laws or regulations, but PE cannot knowingly violate those laws.
- PE shall neither offer nor give any gift of significant value or payment to a government official with the intent to influence the official's judgment regarding prospective or existing projects.
- ASCE requires Members to “have zero tolerance for bribery, fraud, and corruption in all forms and report violations to the property authorities.”



Compliance with Laws/ Society

- An organization engaged in the practice of engineering found by a court or administrative tribunal to have violated the law of the United States or any U.S. jurisdiction protecting the rights of persons working for the employer, such as those pertaining to harassment, discrimination, and unfair compensation, may be subject to discipline by the Board.
- ASCE Code of Ethics “treat all persons with respect, dignity and fairness, and reject all forms of discrimination and harassment.”



Professional Conduct

- PE **shall not** sign or seal drawings, specifications, reports or other professional work for which **they do not have direct supervision**.
- No unethical, immoral or dishonorable conduct indicating lack of fitness to perform services.
- No misleading advertisements or exaggerated claims concerning the PE's professional excellence or abilities.
 - Only take credit for professional work they have personally completed- ASCE (Peers).
- Comment only in a professional manner on the work, professional reputation and personal character of other engineers- ASCE (Peers).



Regulated Titles

- Individuals who do not hold a current and valid license in any jurisdiction shall not use the title of PE.
- PE shall not aid and abet individuals who are not licensed PEs in practicing professional engineering.

Handling Ethical Issues

- Difficult or Ignoring Client
- Limited Scope and Ethical Obligations
 - Worksite Safety
- Proposals
- Political Contributions
- Regulation of Title

Difficult and Ignoring Client

- Pete, a professional engineer, has been working with a local affiliate of a Big Oil Company for a number of years.
- The local facility of Big Oil Company receives various petrochemical products via pipelines and tank trucks and blends them for resale to the private sector.
- Jesse, the manager of the local facility, has been working with Pete for a number of years and is considering recommending that Pete be retained as the outside corporate consulting engineer.
- This would be a big deal for Pete as it would likely result in a promotion within his firm.

** Case Study from Engineering Ethics: Concepts and Cases, 4th Edition, Charles E. Harris, et al.. pp. 264-265
Case 25.

Difficult and Ignoring Client

- One day over coffee, Jesse tells Pete that during the 1970s, a loss of one of the process chemicals was discovered during an audit. There were apparently 100,000 gallons of the chemical missing.
- A corroded pipe was discovered which was allowing the chemical to leak into the ground.
- After stopping the leak, the company sank observation and sampling wells and found that the product was sitting in vertical plume, slowly diffusing into a deep aquifer.
- Because there was no surface or groundwater pollution, the project manager decided to do nothing.

Difficult and Ignoring Client

- Jesse had recently run tests and found essentially zero concentration of the chemical within 400 feet of the surface.
- Pete believes the failure to report this leak, even if it occurred 50 years ago, is against the law, but Jesse told him this information in confidence and there is no evidence of contamination near the surface.
- What is Pete supposed to do?
- Ethical obligations
 - Duty to protect the welfare of the public
 - Duty to follow the law
 - Duty of confidentiality to client
 - Duty of loyalty

Difficult and Ignoring Client

- If, in the course of their work on a project, a licensee becomes aware of a decision made by the licensee's employer or client **against the licensee's advice, which violates applicable federal, state, or local laws and regulations** and which will, in the licensee's judgment, **materially and adversely** affect the health and safety of the public, the licensee shall:
 - Report the decision to the public official charged with enforcement of the applicable laws and regulations;
 - Refuse to consent to the decision or action; and
 - In circumstances where the PE reasonably believes that other such decisions or actions will be taken notwithstanding the licensee's objection, terminate the provision of services with reference to the project unless the licensee is able to cause the matter to be resolved by other means.

Difficult and Ignoring Client

- Pete's Obligations
 - Research whether there is a legal obligation to report the leak.
 - If so, advise Jesse to report the leak and identify the last known location.
 - If Jesse refuses, Pete must notify government agency with jurisdictional authority.
 - If Jesse continues to make decisions which could endanger the public, Pete to terminate professional engineering services.
- What if Jesse is a professional engineer?
 - Pete has an obligation to report conduct in violation.



Best Practices

- Document the concern
 - Notice of violation and request the Client reconsider **in writing**.
 - Photograph the issue, if you can.
 - If Employer/Client ignores the request to reconsider, then notify proper authority and send the notice letter provided to Employer.

Difficult and Ignoring Client



Difficult and Ignoring Client

Surfside Condo Collapse

- 12 Story Beachfront Condominium Building
- Constructed in 1981
- Partially Collapsed on June 24, 2021
- 98 individuals died

Difficult and Ignoring Client

Surfside Condo Collapse Investigation

- 2018 Report from Engineering Firm
 - Identified long-term degradation of reinforced concrete structural support in the ground-level parking garage under the housing units.
 - Improper design and waterproofing of pool deck was causing significant damage to concrete slab and water damage in parking garage below.
 - Identified abundant cracking and spalling of concrete beams, columns and walls in the parking garage and exposed rebar.
 - Steel reinforcements which are exposed to salty air
 - Warned of expensive necessary repairs but no imminent danger of failure.

Difficult and Ignoring Client

IVIC JUD# 10217

Page 8



Figure J1: Typical cracking and spalling at parking garage columns

Difficult and Ignoring Client



Figure K1: Previously installed failed injection repairs with leaching forming



Figure K2: More previously installed failed injection repairs with leaching forming

Difficult and Ignoring Client

Surfside Condo Collapse Investigation

MC trusts this initial report will assist the Champlain Towers South Condominium in understanding the required maintenance that is needed to properly maintain this existing residential property. MC is available to further discuss the recommended repair work and how it coincides with the owner's desires and constraints. We look forward to working with you in maintaining the structural integrity of the Champlain Towers South Condominium.

Difficult and Ignoring Client

Surfside Condo Collapse Investigation

- 2018 Report was presented to City Building Official.
- Building Official reported to Condo Board that the building was “in very good shape .”
- Condo Board Members received the Engineering Report as well.
- Condo Board was concerned about issues raised but the proposed cost was too significant to take on at that time.
- <https://www.nytimes.com/interactive/2021/09/01/us/miami-building-collapse.html>
- Condo Board had prepared to take out a loan to start the repairs

Difficult and Ignoring Client

Surfside Condo Collapse Investigation

- Still under investigation as to cause
- Number of theories
 - Deteriorating concrete and steel support in parking garage
 - Adjacent site was excavating
 - Some evidence of subsidence in the area

Difficult and Ignoring Client

Surfside Condo Collapse Ethic Considerations

- Did the Engineering Firm identify imminent threats to safety?
 - Should it have?
- Was the Building Official a PE?
 - If he was, what violations occurred?
- Did the Engineering Firm have an obligation to report after Condo Board decided to punt on repairs?
 - 2018

Limited Scope and Ethical Obligations

- Limited Scope
 - Contractual arrangement created where PE has limited responsibility on Project (review of plans, observing Project as owner representative).
- Gratuitous Undertaking
 - One who undertakes, gratuitously or for consideration, to render services to another which he or she should recognize as necessary for the protection of the other's person or things, is subject to liability to the other for physical harm resulting from his or her failure to exercise reasonable care to perform his or her undertaking, if:
 - (a) his or her failure to exercise such care increases the risk of such harm; or
 - (b) the harm is suffered because of the other's reliance upon the undertaking
 - Way to obtain more risk without getting additional compensation.

Worksite Safety Cases

How do I ethically handle an observed issue outside my scope of work without exposing myself to additional risk (aka legal liability)?



A photograph of a workspace. On the left, a yellow hard hat is partially visible. In the center, a laptop is open, showing its keyboard. In the foreground, two pens (one black, one blue) are lying on a white surface. The background is slightly blurred.

Worksite Safety Cases

- 3 Cases
- Highlight the legal and ethical issues
- Construction worker v. design professional
- Apply those case results to determine best and ethical practices
- Contract language matters

A yellow hard hat is positioned on the left side of the frame. In the center, a laptop is partially visible, showing its keyboard. Below the laptop, there are drafting tools, including a black pen and a pencil, resting on a white surface. The background is a light blue gradient.

Engineer Responsibilities

- ENGINEER will make site visits
- ENGINEER shall not:
 - supervise, direct or have control over Contractor's work.
- Nor shall ENGINEER have authority over or responsibility:
 - For the means, methods, techniques, sequences, or procedures of construction selected by Contractor; or
 - For safety precautions and programs incident to the work of Contractor.

Safety and Protection

- Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work.

. . .

- Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:
 - all persons on the Site or who may be affected by the Work.



The Engineer will visit the site at intervals appropriate to the stage of construction. . . . to become familiar with the progress and quality of the portion of the Work completed, to determine if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents, and to keep Owner apprised of progress of the Work.

However, the Engineer will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Engineer **will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs** in connection with the Work, since these are **solely the Contractor's rights and responsibilities** under the Contract Documents.

#1 Project

- Bridge over highway
- Civil Engineer
- Claimant: Employee of General Contractor
- Owner: DOT



#1 Facts

- Engineer contracts with DOT
 - Contract does not include any responsibility for worksite safety or control over the means and methods.
- General Contractor contracts with DOT
 - Contract does include safety and supervision responsibility.



#1 Facts

- General Contractor designs shop drawings for a shoring wall.
- Shop drawings are submitted to the Engineer.
- Engineer reviews, stamps, and approves the shop drawings.
- Construction begins.



#1 Facts

- Worker falls from an unguarded walkway on the shoring wall.
- Suffers severe physical injuries.
- Family contacts a lawyer.



#1 Claim(s)

- Professional Negligence Claim Against Engineer.
 - Failed to design barriers and guardrails on the walkways of the shoring wall.
 - Failed to require barriers and guardrails after reviewing the shop drawings.
 - Failed to observe and identify safety hazard during site inspections.
- Negligence Claim Against Contractor.



#1 Responses

Civil Engineer

- No responsibility or obligation to design guardrails or barricades for the shoring wall.
 - Not Engineer's design
- No responsibility to review for safety items within shop drawings.
 - Duty to ensure safety at the site is the contractor's job.
 - See Contract Documents
- No responsibility to police site safety.
 - See Contract Documents



#1 Result

Court of Appeals determined:

- The design and placement of the guardrails and barricades of temporary nature in a worksite area is a safety measure.
- Engineer contractually had no control over safety measures or worksite.
- Workers' safety is the contractor's responsibility.



Lessons Learned

- Ethically, there was no obligation to report because there was no knowledge by the Engineer of safety issue.
- Standard Forms will place contractual safety obligations on contractor, unless modified.





#2 Project

- Sanitary Sewer Installation
- Civil Engineer
- Claimant: Employee of Subcontractor
- Different Jurisdiction



#2 Facts

- Engineer's Scope of Work
 - Prepare Contract Documents for the sewer line installation.
 - Provide an individual to observe work daily.
 - Did not have a contractual obligation for site safety.
 - Did not have a contractual responsibility for the construction means and methods.



#2 Facts

- Employee of subcontractor working in a deep trench without proper shoring.
- The Engineer's representative was present watching the work.
- Unstable wall of trench collapses.
- Engineer's representative witnesses the accident.



#2 Facts

- Engineer's representative was aware of previous failures of the trench's walls before the accident (so was the contractor).
- The worker dies as a result of the collapse.
- Family contacts a lawyer.



#2 Claim(s)

- Wrongful death claim against Engineer
- Wrongful death claim against Contractor



#2 Response

- Engineer owes no duty to ensure safety precautions are followed or supervise the site.
 - Contractor responsible



#2 Result

- Engineer's Representative had the opportunity and was in the position to foresee and discover the harm and to exercise reasonable care to avert the harm.
- Court emphasized that the Engineer had **actual knowledge** of the risk (prior incidents).
- Engineer had a duty to the claimant to prevent the harm despite the contract saying otherwise.



Lessons Learned

- When a clear hazard exists and the professional engineer is aware of the hazard, the professional engineer has an obligation to say something.
 - Ethically and Legally
 - Regardless of what the Contract says

#3 Project

- New building at a community college
- Architect
- Claimant: Employee of General Contractor



#3 Facts

- Architect's Scope of Work
 - Prepare contract documents for the building.
 - Provide limited site observation services.
 - No contractual responsibility for site safety or to supervise worksite.
 - Limited scope of work.



#3 Facts

- Worker gets injured at worksite
- Calls attorney
- Workers testify that they considered Architect's representative the person in charge of safety.



#3 Facts

- Architect's on-site representative during construction:
 - Prepares field reports commenting on:
 - Issues regarding worker safety;
 - Unsafe construction practices; and
 - Maintaining site security.
 - Drafts directives addressing safety issues and improper work practices; and
 - Discusses and advises on safety issues at site meetings.



#3 Claim(s)

- Worker brought suit against Owner
- Owner then brought an indemnity claim against the Architect
 - Owner was passive tortfeasor (no control)
 - Architect's representative was active on-site and directed the work of the claimant



#3 Response

- Architect owes no duty to supervise the site or ensure safety precautions are followed
 - Contractor responsible



#3 Result

- There was sufficient evidence that the Architect “did exercise control and/or directed the work being performed”
- Especially with safety
- Gratuitous Undertaking
- Unethical?--- Was the performance below the standard of competence?



Lessons Learned

Observation of safety concern

=

ethical obligation to notify the party responsible

Taking control of on-site safety

=

legal obligation

Voluntarily taking on responsibilities beyond the limited role on project can create a legal duty





What to do if . . .

Engineer becomes aware of a potential safety hazard that could cause harm?

What to do if . . .



What to do if . . .



Ethical without new legal duties

- Recommendations:
 - Notify party that has the responsibility for the work site safety of the issue.
 - Remove work site safety hazard and insert any other item outside PE's scope of services.
 - Bring up the issue, but do not propose solutions.
 - Properly document.
 - Recurring problem, contact appropriate authorities.
- Every situation is different
- Immediate harm = immediate action

Ethics in Proposals

Hypo:

Engineers of Nebraska, Inc. (EON) submits a proposal to provide professional services for a new infrastructure project. Under the similar projects category, EON identifies five comparable projects. The proposal states “lead engineering firm for these projects.” It is later discovered that EON did perform engineering services on all five projects but was a sub-consultant on two of the five projects listed.

Ethics in Proposals



Hypo:

Engineers of Nebraska (EON) submits a proposal to provide professional services for a new structure. Under the similar projects category, EON identifies five comparable projects. The proposal states “lead engineering firm for these projects.” It is later discovered that EON did perform engineering services on all five projects but was a sub-consultant on two of the five projects listed.

Professional Responsibility –

Must accurately represent qualifications to the client and the scope of their responsibility for projects referenced

Political Contributions

Facts:

Engineers A, B, and C made political contributions in the sums of \$150, \$1000 and \$5000, respectively to a candidate for governor of the state in which the engineers' firms are located. The candidate they supported was victorious. Subsequently, the firms in which A, B and C are principals received several state contracts for engineering services with total fees ranging from \$75,000 to \$4 million over a two-year period. The amount of political contribution made by each engineer and the amount of total fees from the state contracts paid to his or her firm were later disclosed in a local newspaper. It has been alleged in the local newspapers that the engineers acted unethically.

National Society of Professional Engineers (NSPE) Board of Ethical Review Case 73-6

Political Contributions

1. At the time he made a contribution, was Engineer A acting unethically?
2. At the time she made a contribution, was Engineer B acting unethically?
3. At the time she made a contribution, was Engineer C acting unethically?
4. Was Engineer A unethical for taking the state contracts under the circumstances?
5. Was Engineer B unethical for taking the state contracts under the circumstances?
6. Was Engineer C unethical for taking the state contracts under the circumstances?

PE shall neither offer nor give any gift of significant value or payment to government official with the intent to influence official's judgment regarding prospective or existing project.

“Direct contributions to candidates for political office in a nominal amount are permissible under the Code but that political contributions in excess of the nominal amount are violations.”

Political Contributions

- 75-13 – Deals with Contributions to Political Action Committees
 - Members can donate whatever they like
 - Executive Committee determine which candidates and how much get funds
 - No direct tie between contributor and candidate
 - Deemed ethical
- 76-12- Deals with Engineer who heads special campaign solicitation committee
 - Engineer raises funds for two incumbents of entity that awards his firm agreements
 - Deemed unethical for engineer to continue to accept agreements after the election

Case Studies from NSPE BER

Regulation of Title

- Use of “Engineer” by an individual not licensed as a Professional Engineer
- Enforcement varies by state (and their statutory authority)
- Most Aggressive
 - Texas
 - Missouri
 - Mississippi
- Use of “Engineer”
 - Trade Name
 - Title



Regulation of Title



- Use of “Engineer” in the name of the company
 - Is the use of “Engineer” likely to confuse public that PE works there?
 - Does the company provide services and/or materials in construction industry?
 - Does the company provide machinery?
 - “Express Oil Change, LLC and TE, LLC d/b/a Tire Engineers”
 - United States District in Southern District of Mississippi
 - Mississippi Board had authority to determine name violated PE statute.
 - February 2018

Regulation of Title

- Use of “Engineer” as employee’s title
 - Software Engineer
 - Some are licensed or can be licensed.
 - Tire Engineer?
 - Sandwich Engineer?



Questions?



Risk Management

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