

ENGINEERING ETHICS RESOURCE MATERIALS

Engineering Ethics Resources

<http://ethics.tamu.edu/>

<http://onlineethics.org/>

<http://www.nspe.org/ethics/>

http://en.wikipedia.org/wiki/Engineering_ethics

NSPE Code of Ethics: <http://www.nspe.org/ethics/eh1-code.asp>

http://www.asme.org/NewsPublicPolicy/Ethics/Ethics_Center.cfm

Fleddermann, C., *Engineering Ethics*, Prentice Hall, 1999

Martin, M. and Schinzinger, R., *Ethics in Engineering, 2nd ed.*, McGraw-Hill, 1983

Hyatt Regency Walkway Collapse

(From <http://ethics.tamu.edu/ethics/hyatt/hyatt1.htm>)

Cast Of Characters

In 1976, as owner, Crown Center Redevelopment Corporation - commenced a project to design and build a Hyatt Regency Hotel in Kansas City, Missouri, and on April 4, 1978, Crown entered into a standard contract with G.C.E. International, Inc. Professional Consulting Firm of Structural Engineers (1980 formerly called Jack D. Gillum & Associates, Ltd. changed name to G.C.E. May 5, 1983) G.C.E. agreed to provide, "all structural engineering services for a 750-room hotel projected located at 2345 McGee Street, Kansas City, Missouri." On or about December 19, 1978, Eldridge Construction Company, the general contractor on the Hyatt project, entered into a subcontract with Havens Steel Company Professional Fabricator who agreed to fabricate and erect the atrium steel for the Hyatt project.

Principals

- * Jack D. Gillum P.E., structural engineering state licensed since February 26, 1968
- * Daniel M. Duncan P.E., structural engineering state licensed since February 27, 1979
- * PBNMML Architects, Planners, Inc. Architect.

Chronology

- Early 1976: Crown Center Redevelopment Corporation (owner) commences project to design and build a Hyatt Regency Hotel in Kansas City, Missouri.
- July 1976: Gillum-Colaco, Inc. (G.C.E. International, Inc., 1983), a Texas corporation, selected as the consulting structural engineer for the Hyatt project.
- July 1976- Hyatt project in schematic design development.
- Summer 1977: G.C.E. assisted owner and architect (PBNMML Architects, Planners, Inc.) with developing various plans for hotel project, and decided on basic design.
- Late 1977- Bid set of structural drawings and specifications
- Early 1978: Project prepared, using standard Kansas City, Missouri, Building Codes.
- April 4, 1978: Actual contract entered into by G.C.E. and the architect, PBNMML Architects, Planners, Inc. G.C.E. agreed to provide "all structural engineering services for a 750-room hotel project located at 2345 McGee Street, Kansas City, Missouri."
- Spring 1978: Construction on hotel begins.
- August 28, 1978: Specifications on project issued for construction, based on the American Institute of Steel Construction (AISC) standards used by fabricators.
- December 1978: Eldridge Construction Company, general contractor on the Hyatt project, enters into subcontract with Havens Steel Company. Havens agrees to fabricate and erect the atrium steel for the Hyatt project.
- January 1979: Events and communications between G.C.E. and Havens.
- February 1979: Havens makes design change from a single to a double hanger rod box beam connection for use at the fourth floor walkways. Telephone calls disputed; however, because of alleged communications between engineer and fabricator, Shop Drawing 30 and Erection Drawing E3 are changed.
- February 1979: G.C.E. receives 42 shop drawings (including Shop Drawing 30 and Erection Drawing E-3) on February 16, and returns them to Havens stamped with engineering review stamp approval on February 26.
- October 14, 1979: Part of the atrium roof collapses while the hotel is under construction. Inspection team called in, whose contract dealt primarily with the investigation of the cause of the roof collapse and created no obligation to check any engineering or design work beyond the scope of their investigation and contract.
- October 16, 1979: Owner retains an independent engineering firm, Seiden-Page, to investigate the cause of the atrium roof collapse.

October 20, 1979: Gillum writes owner, stating he is undertaking both an atrium collapse investigation as well as a thorough design check of all the members comprising the atrium roof.

October 1979- Reports and meetings from engineer to clients

November 1979: owner/architect assures clients of overall safety of the entire atrium.

July 1980: Construction of hotel complete, and the Kansas City Hyatt Regency Hotel opens for business.

July 17, 1981: Connections supporting the rods from the ceiling that held up the 2nd and 4th floor walkways across the atrium of the Hyatt Regency Hotel collapse, killing 114 and injuring in excess of 200 others.

February 3, 1984: Missouri Board of Architects, Professional Engineers and Land Surveyors files complaint against Daniel M. Duncan, Jack D. Gillum and G.C.E. International Inc., charging gross negligence, incompetence, misconduct and unprofessional conduct in the practice of engineering in connection with their performance of engineering services in the design and construction of the Hyatt Regency Hotel in Kansas City, Missouri.

November, 1984: Duncan, Gillum, and G.C.E. International, Inc. found guilty of gross negligence, misconduct and unprofessional conduct in the practice of engineering. Subsequently, Duncan and Gillum lost their licenses to practice engineering in the State of Missouri, and G.C.E. had its certificate of authority as an engineering firm revoked. American Society of Civil Engineering (ASCE) adopts report that states structural engineers have full responsibility for design projects. Duncan and Gillum now practicing engineers in states other than Missouri.

ASME CODE OF ETHICS OF ENGINEERS (11/05/2006)

The Fundamental Principles

Engineers uphold and advance the integrity, honor and dignity of the engineering profession by:

- I. using their knowledge and skill for the enhancement of human welfare;
- II. being honest and impartial, and serving with fidelity their clients (including their employers) and the public; and
- III. striving to increase the competence and prestige of the engineering profession.

The Fundamental Canons

1. Engineers shall hold paramount the safety, health and welfare of the public in the performance of their professional duties.
2. Engineers shall perform services only in the areas of their competence; they shall build their professional reputation on the merit of their services and shall not compete unfairly with others.
3. Engineers shall continue their professional development throughout their careers and shall provide opportunities for the professional and ethical development of those engineers under their supervision.
4. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest or the appearance of conflicts of interest.
5. Engineers shall respect the proprietary information and intellectual property rights of others, including charitable organizations and professional societies in the engineering field.
6. Engineers shall associate only with reputable persons or organizations.
7. Engineers shall issue public statements only in an objective and truthful manner and shall avoid any conduct which brings discredit upon the profession.
8. Engineers shall consider environmental impact and sustainable development in the performance of their professional duties.
9. Engineers shall not seek ethical sanction against another engineer unless there is good reason to do so under the relevant codes, policies and procedures governing that engineer's ethical conduct.
10. Engineers who are members of the Society shall endeavor to abide by the Constitution, By-Laws and Policies of the Society, and they shall disclose knowledge of any matter involving another member's alleged violation of this Code of Ethics or the Society's Conflicts of Interest Policy in a prompt, complete and truthful manner to the chair of the Committee on Ethical Standards and Review.

Code of Ethics for Engineers (Jan, 2006, www.nspe.org)

Preamble

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.

I. Fundamental Canons

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.
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.

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.
- d. Engineers shall not permit the use of their name or associate in business ventures with any person or firm that they believe is 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.

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.

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.

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.
- 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.

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.
- 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 or intent of 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.

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.
- 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.

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.
- d. Engineers shall strive to adhere to the principles of sustainable development in order to protect the environment for future generations.

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.

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.

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.

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.

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.
- 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.

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 nonengineer, a corporation, or partnership as a "cloak" for unethical acts.

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.
- 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.

Footnote 1 "Sustainable development" is the challenge of meeting human needs for natural resources, industrial products, energy, food, transportation, shelter, and effective waste management while conserving and protecting environmental quality and the natural resource base essential for future development.