

Engineering Design Ethics Homework

EE 4309 Senior Design I

Choose two case studies shown here, and provide a description on your thoughts about the case. Approximately a page for each case study. Due October 30, 2016.

Case Study One:

Competition from Former Employees (adapted from NSPE Case No. 77-11)

A group of engineers leave their employer to start their own firm. As the new firm contacts clients from its former employer, each firm casts doubts on the capability of the other firm to provide competent services. This is an open-ended scenario for discussion based on a case from the NSPE Board of Ethical Review.

Following a disagreement between Chung engineering firm and several of its employees over certain policies, four employees left Chung. The ex-employees organized a new engineering firm, with themselves as its principals. The new company then began to contact former clients of the Chung firm. In several cases, these former clients had dealt with one or more of the engineers now involved with the new firm. The new firm also contacted potential clients who had discussed projects with Chung.

At this point, what, if any, obligation does the new firm owe to their former employers?

While the new firm was announcing its services, the Chung firm was also contacting the clients to assure them that despite the departure of the four engineers, the Chung firm still retained its capacity to meet its clients' needs. Former clients told the Chung firm that the new firm had cast doubt on the ability of Chung to provide quality services. In its discussion with the clients, the Chung firm cast doubt on the new firm's ability to provide adequate services.

What obligation does the Chung firm have to its former employees? How should the Chung firm react to the information that the new firm is disparaging the Chung firm to clients? How should the new firm react to the same information? Under what circumstances should an engineer or firm cast doubt on the ability of another engineer or firm? What constitutes fair competition for clients?

Case Study Two:

Protesting a Low Fee Proposal

This is an open-ended scenario for discussion based on a case from the NSPE Board of Ethical Review. Three competing firms submit price proposals with significant price differences. The lowest price proposal is challenged on the grounds that competent engineering services could not be provided within this budget.

A State agency announces its decision to proceed with the designing of a highway bridge. In order to secure the services of an engineering firm to design the bridge, the agency announces that all interested firms should submit a statement of qualification. Upon review of the qualifications of the various firms by an agency selection board, the list will be paired down to three finalists. After participating in a “scope of project” meeting, the three will submit cost proposals for the project. The State agency makes it clear in its announcement that cost will be a significant factor, but not necessarily the deciding factor.

Several firms submit statements of qualification, and after reviewing the competency of these firms, the agency engineering staff narrows the list down to the O’Leary Company, the Allied Corporation, and Mikic Incorporated. Representatives of those three firms then attended a “scope of project” meeting, after which they submit the following cost proposals: the O’Leary Company - \$50,000; the Allied Corporation - \$120,000; Mikic Incorporated - \$200,000.

After deliberation, the agency announces that it has awarded the contract to the O’Leary Company. You are a principal in the Allied Corporation. You believe that it is unfair and unethical for the O’Leary Company to submit such a low bid. You believe it is unlikely that the O’Leary Company can complete the project for that little money without compromising the design or having higher maintenance costs in the future. The O’Leary Company could even jeopardize public safety if it tries to complete the project within its specified budget.

What, if anything, do you do?

Suppose that following the decision, The Allied Corporation and Mikic Incorporated file a protest with the agency and call for a public hearing on the basis of the ideas expressed above. If you were a principal with the O’Leary Company, how would you respond?

Should the County agency have accepted this bid after maintaining that cost would not be the overriding factor? What additional information would be relevant to your ethics assessment?

Case Study Three:

Credit for Engineering Work Design Competition

Amory, an engineer, is retained by the City to design a bridge as part of an elevated highway system. Amory retains services of Carroll, a structural engineer, with expertise in horizontal geometry, superstructure design and elevations, to design certain parts of the bridge. Carroll draft plans for the bridge's three curved welded-plate girder spans, a critical part of the bridge's design.

Months later, Amory enters the bridge design into a national organization's bridge design competition, and it wins first prize. The entry, however, fails to credit Carroll for his part in the bridge design.

What, if anything, should Carroll do?

Case Study Four:

Accepting a Complimentary Seminar Registration

A pipe company invites engineers to a complimentary educational seminar on the use of its products. This could be compared to perks and gifts given to physicians by drug companies.

In an effort to become better known in the engineering community. Marketwise Pipe Manufacturing Company hires Susan, an expert in marketing. Susan suggests that Marketwise offer a complimentary seminar to educate engineers on the current advances in the selection and use of pipe in construction. She suggests that Marketwise extend invitations to several local engineers and that they offer refreshments at the seminar, including a buffet luncheon during the seminar and a cocktail reception immediately following.

If you were an executive at Marketwise, how would you respond to Susan's suggestion?

Suppose that Marketwise takes Susan's suggestion and extends an invitation to Terry, a local engineer who is new to the area. Terry is not sure how to respond to this invitation. Being new to the area, attending such a seminar will give him the opportunity to meet and network with other engineers. Furthermore, learning more about the selection and use of pipes would be helpful to Terry. On the other hand, Terry knows he will be purchasing pipes at some point in the future and wonders if accepting the invitation might later create a conflict of interest. In addition, Terry wonders if accepting the invitation will amount to a bribe.

How should Terry respond to the invitation?