

Making Changes to the Work of Another Engineer

Case No. 09-6

Facts:

Two professional engineers with similar backgrounds and expertise in electrical engineering are assigned to the same project because of time constraints and other factors, but are given responsibility for different parts of the project. Engineer A prepares, designs, and stamps the design documents for which he is responsible, and Engineer B prepares, designs, and stamps the design documents for which he is responsible. The project and design documents are released for construction. A change in project scope requires revision to a subset of the design documents. Both Engineer A and Engineer B make their respective changes and revise the design documents for which they are responsible.

It is the practice of the company that the engineers' work requires a professional engineer to manually "initial" the revision block of the document being revised, identifying the responsible engineer. Engineer A delays release of his revisions which causes completed revisions by Engineer B also to be held until all design documents are ready to be released. Management strongly encourages Engineer A to complete his work so that all design documents can be released. Engineer A completes his work at a point in time when neither Engineer B nor immediate management is available. In completing his work at the behest of management, Engineer A makes minor changes to design documents prepared and revised by Engineer B without consulting Engineer B.

It is understood that Engineer A was technically competent to make the revisions of Engineer B's work.

Question:

Was it unethical for Engineer A to makes minor changes to design documents prepared and revised by Engineer B without consulting?

References:

- | | | | |
|-----------------|---|----------------------|--|
| Section I.5. | - | NSPE Code of Ethics: | <i>Engineers, in the fulfillment of their professional duties, shall avoid deceptive acts.</i> |
| Section II.1.b. | - | NSPE Code of Ethics: | <i>Engineers shall approve only those engineering documents that are in conformity with applicable standards.</i> |
| Section II.2.a. | - | NSPE Code of Ethics: | <i>Engineers shall undertake assignments only when qualified by education or experience in the specific technical fields involved.</i> |
| Section II.2.b. | - | NSPE Code of Ethics: | <i>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.</i> |

- Section II.2.c. - NSPE Code of Ethics: *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.*
- Section III.1.b. - NSPE Code of Ethics: *Engineers shall advise their clients or employers when they believe a project will not be successful.*

Discussion:

The facts in this case raise some of the central issues involved in the practice of engineering—the signing and sealing of engineering work and the professional engineer's duties and responsibilities in connection with the signing and sealing of engineering documents.

As a starting point, NSPE Code of Ethics Sections II.2.a., II.2.b., and II.2.c. address many of the issues related to the facts of this case. Section II.2.a. seeks to admonish the engineer to accept work only in those areas of practice in which the engineer possesses the proper qualifications so as to competently perform the tasks to which he is assigned. Section II.2.b. examines the issue of ethical responsibility and states that an engineer must sign and seal documents and assume legal responsibility only for that which he possesses understanding and cognizance. Finally, Section II.2.c. establishes a hierarchy of responsibility by which engineers may coordinate and assume responsibility for entire projects, as long as those individuals under the engineer's responsible control are identified as having prepared each technical segment of the work. The rationale behind those rules lies in the recognition that while the signature and seal of the engineer has consequences which go beyond the issue of ethics, the conduct of the engineer in the preparation of the plans and design documents involves the professional judgment and discretion of the engineer; judgment and discretion which are shaped by a variety of ethical concerns.

For example, in the BER Case 85-3, an engineer with experience and background solely in the field of chemical engineering accepted a position as a county surveyor. We noted that while the duties of the position included oversight of surveying reports and highway improvement but no actual preparation of engineering and surveying documents, nevertheless the engineer was unethical in accepting the position. As the Board noted: "It could be stated that the engineer's responsibilities did not include actual preparation or approval of engineering or surveying documents, that instead such documents would be prepared or approved by qualified individuals; his role would be to oversee those documents and reports. We are convinced that neither is this the intent of the NSPE Code provisions nor is this what is commonly understood to be the proper oversight role of a county surveyor." Clearly, in BER Case 85-3, the Board was faced

with a situation in which an engineer was seeking to fulfill a role for which he possessed neither the qualifications nor the experience to perform in a competent manner.

In Case 86-2, the Chief Engineer within a large engineering firm affixed his seal to some of the plans prepared by registered engineers working under his general direction who did not affix their seals to the plans. At times, Chief Engineer also seals plans prepared by nonregistered, graduate engineers working under his general supervision. Because of the size of the organization and the large number of projects being designed at any one time, Chief Engineer found it impossible to give a detailed review of the design. He believed he is ethically and legally correct in not doing so because of his confidence in the ability of those he has hired and who are working under his general direction and supervision. By general direction and supervision, Chief Engineer meant that he is involved in helping to establish the concept, the design requirements, and review elements of the design or project status as the design progresses. Chief Engineer is consulted about technical questions and he provided answers and direction in these matters.

In finding that it was unethical for Chief Engineer to seal plans that have not been prepared by him, or which he has not checked and reviewed in detail, the Board noted that the role of the chief engineer in an engineering firm may be that of a "manager who provides guidance, direction, and counsel to those within his responsible charge." Indeed, in a large engineering firm, this role is crucial to the successful operation of the firm. The Chief Engineer should be involved at the outset of the project in the establishment of the design concept and the design requirements, as well as in the review of the various elements of the design or project status as the project develops. In addition, the Chief Engineer should be available to consult on technical questions relating to the project design.

To this end, we reiterated the language contained in Code Section II.2.c., noting that "each technical segment [shall be] signed and sealed only by the qualified engineers who prepared the segment," and that the firm and its professional engineers have an ethical obligation that this work be performed under the direct control and personal supervision of licensed engineers who would seal the document.

NSPE Code Sections II.2.a, II.2.b, and II.2.c. are mutually dependent Code provisions that must be read together in order for them to have meaning. In the context of the Case 86-2, one of the most important aspects of the language of those provisions is the reference to "direction and control" found in Section II.2.b. We think a carefully crafted definition of that provision will assist us in a resolution of the facts in this case.

The term "direction" is generally defined by Webster's New Collegiate Dictionary (1981 ed.) as "guidance or supervision of action or conduct; management; a channel or direct course of thought or action." The word "control" is generally defined as "the authority to guide or manage; direction, regulation, and coordination of business activities." It is clear that "direction" and "control" have a meaning which, when combined, would suggest that an engineer be required to oversee engineering related to the preparation of the drawings, plans, and specifications in order to ethically affix his seal. More pertinent to the engineering profession, however, is the National Council of Examiners for Engineering and Surveying Model Law, which is endorsed by this Board, and reads as follows: responsible charge—the term "responsible charge" as used in this act shall mean "direct control and personal supervision of engineering work."

Unlike the earlier cases discussed, the present case does not involve a situation whereby an engineer is engaging in areas of professional practice that are alien to his experience up until that point of being assigned the task (as was the circumstance in Case 85-3), or is seeking to exercise management authority over the entire engineering design process (as was the circumstance in Case 86-2). Instead, this case appears to involve an engineer under considerable pressure to deliver a set of engineering design documents in order for construction to proceed but, due to the unavailability of another engineer in responsible charge for certain aspects of the work, takes it upon himself to make minor changes in the other engineer's work in order to be done. While it may be argued that Engineer A's actions are explainable under the circumstances, for a number of reasons, the Board finds it difficult to square Engineer A's actions with the language of the NSPE Code of Ethics.

For example, even if Engineer A had some involvement in the work of Engineer B, it is not clear whether Engineer A possessed the competence in the field involved in order to sign and seal Engineer B's work. In addition, under the facts, Engineer A clearly did not exercise responsible charge (direct control or personal supervision) over the work in question, work which was either prepared or supervised by Engineer B. Further, there is no indication that Engineer A took any steps to identify and document the actual changes he made to Engineer B's work.

Engineer A's failure to first discuss the situation with Engineer B prior to making the changes to the work is unacceptable. While the Board understands the frequent pressures that engineers sometimes experience due to time, financial, and other constraints, a professional engineer must act ethically, resist such demands, and act in a manner consistent with the NSPE Code of Ethics.

Conclusion:

It was not ethical for Engineer A to make minor changes to design documents prepared and revised by Engineer B without conferring and gaining the approval of Engineer B.

Board of Ethical Review:

Curtis A. Beck, P.E., F.NSPE
Mark H. Dubbin, P.E., NSPE
Robert C. Gibson, P.E., F.NSPE
Monte L. Phillips, Ph.D., P.E., F.NSPE
Samuel G. Sudler III, P.E., NSPE
Mumtaz A. Usmen, Ph.D., P.E., F.NSPE
Michael L. Shirley, P.E., F.NSPE, Chair

NOTE: The NSPE Board of Ethical Review considers ethical cases involving either real or hypothetical matters submitted to it from NSPE members, other engineers, public officials, and members of the public. The BER reviews each case in the context of the NSPE Code and earlier BER opinions. The facts contained in each case do not necessarily represent all of the pertinent facts submitted to or reviewed by the BER.

Each opinion is intended as guidance to individual practicing engineers, students, and the public. In regard to the question of application of the NSPE Code to engineering organizations (e.g., corporations, partnerships, sole proprietorships, government agencies, and university engineering departments), the specific business form or type should not negate nor detract from the conformance of individuals to the NSPE Code. The NSPE Code deals with professional services, which must be performed by real persons. Real persons in turn establish and implement policies within business structures.

This opinion is for educational purposes only. It may be reprinted without further permission, provided that this statement is included before or after the text of the case and appropriate attribution is provided to the National Society of Professional Engineers' Board of Ethical Review.

To obtain additional NSPE opinions, visit www.nspe.org or call 1-888-285-NSPE (6773).