

Signing and Sealing of Documents—Electronic Seal and Signature

Case No. 18-7

Facts:

Engineer A is a solo practitioner in private practice who performs engineering design services in a rural area. Engineer A recently established an internal process for using an electronic seal and signature protocol after finalizing engineering design documents. Electronic signatures and seals are permissible in the jurisdiction in which Engineer A practices. Thereafter, Engineer A is retained by Client B in a nearby rural community to perform engineering design services in connection with Client B, a private industrial building owner. Engineer A does not advise Client B in advance regarding Engineer A's use of an electronic seal and signature. Unbeknownst to Engineer A, Client B does not have the necessary software to permit a valid exchange of the electronic information in a compatible manner to allow Engineer A's signed and sealed documents to be transmitted to Client B. As a result, code official approval; financing; and construction are delayed, causing inconvenience and increased costs to Client B.

Question:

What were Engineer A's ethical obligations under the circumstances?

NSPE Code of Ethics References:

- Section II.1.b. - Engineers shall approve only those engineering documents that are in conformity with applicable standards.*
- Section II.2.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.*
- Section II.2.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.*
- Section II.4. - Engineers shall act for each employer or client as faithful agents or trustees.*
- Section III.8.a. - Engineers shall conform with state registration laws in the practice of engineering.*

NSPE BER Case References: 86-2; 16-2

Discussion:

As new technologies emerge, professional engineers need to be aware of the impact they may have on their employers, clients, colleagues, and the public. Many of these new and emerging technologies have a significant impact on engineering professional practice and ethics today and in the future. Electronic signatures and seals are just one of these new emerging technologies that potentially raise ethical questions.

The responsibility to meet the required standards in signing and sealing engineering documents is among the most important and critical responsibilities of a professional engineer. The act of signing and sealing engineering documents signifies that (1) the engineering work was prepared by the professional engineer or under the professional engineer's direct control or personal supervision; (2) the signing and sealing professional engineer is of the opinion that the documents contained meet usual and customary engineering standards of practice; and (3) the documents are appropriate for review and approval by the appropriate code enforcement official.

The BER has previously considered cases focused on the role of the professional engineer in the signing and sealing of work. For example, BER Case 86-2 involved the chief engineer in a large engineering firm, Engineer A, who affixed his seal to some of the plans prepared by licensed engineers working under his general supervision who did not affix their seals to the plans. At times, Engineer A also sealed plans prepared by non-licensed graduate engineers under Engineer A's supervision. Because of the size of the organization and the large number of projects being designed at any one time, Engineer A found it impossible to give a detailed review or check of the designs. He believed his actions were ethical and legal because of his confidence in the ability of the engineers he had hired who were working under his general direction and supervision. By general direction and supervision, Engineer A meant that he was involved in helping to establish the concept or design requirements, and reviewed elements of the design or project status as the design or project progressed. Engineer A was consulted about technical questions, and he provided answers and direction on these matters.

In determining that it was unethical for Engineer A to seal plans that he had not prepared, or which he had not reviewed and checked in detail, the BER noted that the term "direction" contained in NSPE Code Section II.2.b. is generally defined 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." The BER recognized that the role of a chief engineer in an engineering firm may be that of a "manager who provides guidance, direction, and counsel to those within his responsible charge." In a large engineering firm, this role is crucial to the successful operation of the firm. The BER noted that under the facts in BER Case No. 86-2, 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 design or project progressed, for the protection of the client's interests and the public. In addition, the chief engineer should also be available to consult on technical questions relating to the project design.

More recently, in BER Case 16-2, Engineer A was a professional engineer with significant expertise in fire protection engineering. Engineer A was contacted by a fire sprinkler contractor and asked to review, sign, and seal the proposed layout design document developed solely by the fire sprinkler contractor without the involvement of a professional engineer, in order for the document to be submitted to the local code official for review and approval. Under the state law, fire sprinkler design documents were required to be prepared by or under the responsible charge of a licensed professional engineer. Engineer A had significant experience preparing detailed fire sprinkler layout drawings and performing hydraulic calculations and fluid delivery time calculations as required by National Fire Protection Association standards. In deciding that Engineer A should decline to review, sign, and seal the fire sprinkler contractor's proposed layout design documents developed solely by the fire sprinkler contractor, the BER concluded that Engineer A should propose that Engineer A should initiate the design process, taking into account an evaluation of the broad range of hazards and protection schemes required to develop a workable, integrated solution to address fire safety concerns, and then move forward in preparing design documents for the fire protection system. Following this process, the fire sprinkler contractor and its competent engineering technicians should perform system layout, prepare shop drawings, and develop material submittals, all in accordance with the professional engineer's design, and support the installation of fire protection systems under the direction of the professional engineer for the protection of the client and the public.

The facts, circumstances, and considerations of the aforementioned cases involving the signing and sealing of engineering documents, drawings, plans, specifications, and reports are somewhat different than the facts in the present case. In this case, although Engineer A did not perform an unethical act, the facts indicate that Engineer A should have taken appropriate steps in advance to communicate to Client B how Engineer A's engineering deliverable would be transmitted to Client B. Engineer A should have clearly communicated this fact either at the time of initial selection of Engineer A by Client B or in any contractual agreement between Engineer A and Client B. Engineer A's failure to do so conflicted with Engineer A's obligation to act for each employer or client as a faithful agent or trustee.

Conclusion:

While Engineer A's actions were not unethical, Engineer A should have taken appropriate steps in advance to communicate to Client B how Engineer A's engineering deliverable would be transmitted to Client B.

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