# INCOMPLETE PLANS AND SPECIFICATIONS – ENGINEER, GOVERNMENT, AND CONTRACTOR RESPONSIBILITIES

***Case No. 99-8***

**Facts:**

Engineer A responds to an RFP from a small local public agency to build a new dam to be financed in part by a federal grant. Engineer A's firm's impressive brochure and personal interview results in the award of a contract for the design, drawings, and specifications.

The signed and sealed drawings and specifications are ultimately approved by Engineer B of the engineering staff of the federal agency funding the project, and the project is thereafter duly advertised for bids and a contract is awarded to the low bidder, Hi-Lo Construction. The local public agency does not have the in-house technical resources to review the drawings and specifications.

At the pre-construction conference, it is pointed out by Engineer C, owner of Hi-Lo Construction, that much of the design detail is lacking in the drawings and specifications and that Hi-Lo Construction declares that certain parts of the project are "unbuildable" without major changes. Engineer A generally agrees with Hi-Lo's characterization, but in his defense responds that he felt pressured to deliver the drawings and specifications on a specified date, but did not inform anyone as to their incompleteness. While much of the information was missing from the drawings and specifications, Engineer A was confident that sufficient federal funds (and not local funding) would cover any potential increased costs.

**Questions:**

1. Was it ethical for Engineer A to submit final drawings and specifications for review and approval that he knew were incomplete?

2. Was it ethical for Engineer B to approve a set of incomplete drawings on behalf of the Federal government for competitive bidding?

3. Was it ethical for Engineer C, owner of the Hi-Lo Construction firm, to submit a bid on a construction contract that he later characterized as "unbuildable" without major changes?

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## References:

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| *Section I.1.* | - | *Code of Ethics:* | *Engineers, in the fulfillment of their professional duties, shall hold paramount the safety, health and welfare of the public.* |
| *Section II.3.a.* | - | *Code of Ethics:* | *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.* |
| *Section II.5.* | - | *Code of Ethics:* | *Engineers shall avoid deceptive acts.* |
| *Section III.1.b.* | - | *Code of Ethics:* | *Engineers shall advise their clients or employers when they believe a project will not be successful.* |
| *Section III.2.b.* | - | *Code of Ethics:* | *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.* |

## Discussion:

The Board has considered cases involving similar situations in the past. In BER Case No. 82-5, where an engineer employed by a large defense industry firm documented and reported to his employer excessive costs and time delays by sub-contractors, the Board ruled that the engineer did not have an ethical obligation to continue his efforts to secure a change in the policy after his employer rejected his reports or to report his concerns to proper authority, but has an ethical right to do so as a matter of personal conscience. The Board noted that the case did not involve a danger to the public health or safety, but related to a claim of unsatisfactory plans and the unjustified expenditure of public funds. The Board indicated that it could dismiss the case on the narrow ground that the NSPE Code does not apply to a claim not involving public health and safety, but that was too narrow a reading of the ethical duties of engineers engaged in such activities. The Board also stated that if an engineer feels strongly that an employer's course of conduct is improper when related to public concerns, and if the engineer feels compelled to blow the whistle to expose facts as he sees them, he may well have to pay the price of loss of employment. In this type of situation, the Board felt that the ethical duty or right of the engineer becomes a matter of personal conscience, but the Board was unwilling to make a blanket statement that there is an ethical duty in these kinds of situations for the engineer to continue the campaign within the company and make the issue one for public discussion.

As in Case No. 82-5, the issue does not allege a danger to public health or safety, but is premised upon a claim of unsatisfactory plans and the unjustified expenditure of public funds. In Case No. 82-5, the Board found that, while the Code did not require disclosure,

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the engineer did have an ethical right to pursue the matter further, even to the point of public disclosure. Unlike Case No. 82-5, this case does not involve a conflict with the ethical requirement of confidentiality, but concerns the affirmative responsibility of engineers to complete plans in conformity with applicable engineering standards and avoid deceptive acts.

While the Board certainly hopes that the facts involved in this case are very unique and do not represent more than a small fraction of public design and construction projects in the United States, it appears that the facts as presented in this case are, unfortunately, not as unique as one might hope.

It is clear that Engineer A had an obligation to provide a complete set of design drawings and specifications on the project in which Engineer A was engaged. Unlike what is required on some projects (e.g., design/build or construction contracts with specific design delegation clauses or provisions) where the engineer is expected to only design a certain percentage of the project prior to the selection of the contractor, here, Engineer A was fully required to provide the complete design on the project. Engineer A's bold assertion that the work was incomplete, but that this was due to time pressures and his expectation that Federal funds would be awarded to complete the work is wholly unconvincing. Engineer A was selected for his expertise, which presumably included Engineer A's ability to fully perform the work based on project time parameters. Engineer A's comment about Federal funds borders on fraud and misrepresentation and is a clear violation of the NSPE Code.

Engineer B's approval of Engineer A's incomplete plans is troubling, although we do not know all of the facts and circumstances relating to the decision to approve. Engineers have an obligation to perform services within their area of competence. If Engineer B was not able to perform the necessary reviews of Engineer A's work, Engineer B should have provided this information to a supervisor who would have assigned an appropriate engineer to perform the review. Not possessing adequate competency to perform a task is not in and of itself a violation of the NSPE Code, but the failure to recognize the lack of competency and take appropriate action to address the situation is a violation of the NSPE Code.

Finally, the Board believes that Engineer C's actions in bidding on an "unbuildable" contract is also very troubling. Presumably, Engineer C had an opportunity to review the bidding documents which included appropriate engineering drawings, plans, and specifications. From such a review, Engineer C should have had a sense of what would be necessary to complete the project. If the engineering documents were incomplete or inadequate, then Engineer C's bid should have reflected that fact and contained appropriate bid items for additional services required to complete the work for the benefit of the owner. In addition, Engineer C could have requested further

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clarification from the owner or Engineer A in order to better understand the engineering drawings. As an engineer and a contractor presumably, Engineer C had the necessary background and experience to carefully evaluate the engineering drawings as well as other aspects of the work in order to make an informed decision as to whether to bid on the project. Engineer C had no one to fault but himself for the problems Engineer C encountered in attempting to build the project. Engineer C submitted the low bid on the project, presumably knowing inadequacies of the documents as well as the obvious risks involved.

**Conclusions:**

1. It was not ethical for Engineer A to submit drawings and specifications for review and approval that he knew were incomplete.

2. It was not ethical for Engineer B to approve a set of incomplete drawings on behalf of the Federal government for competitive bidding.

3. It was not ethical for Engineer C, owner of the Hi-Lo Construction firm, to submit a bid on a construction contract that he later characterized as "unbuildable" without major changes.

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