CE 790 Engineering Ethics Case Studies Rubric.
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Task	Maximum (%)	
1. Gather the facts, state assumptions.	12	12
2. Define and separate the various ethical issues.	12	12
3. Study more information available on web.	3	3
4. Identify the affected parties (stakeholders).	7	7
5. Identify the consequences related to each issue.	7	7
6. Identify the obligations related to each issue.	7	7
7. Consider the character and integrity related to each issue.	4	7
8. Think creatively about potential actions or solutions.	9	9
9. Develop competing viewpoints or arguments supporting each solution.	12	12
10. Visit with peers.	2	6
11. Test solutions.	6	6
12. Decide on action and prepare to deal with opposing arguments.	9	12
	3	4
TOTAL		100

94

QUALITY OF WORK PRESENTED IN A REPORT

poor
missing some steps
short on facts/assumptions of case
very short analysis of the 3 methods
few potential solutions presented and argued
doesn't argue decision well
report not well constructed
overall does not illustrate understanding of case or issues

good
all steps included in report
Some analysis of the three methods weak
not exhaustive list of potential solutions
decision argued well
report well done
understands case, just not every point considered

excellent
all steps done in-depth
all topics considered, analyzed
very convincing argument for decision
report organization excellent
exhaustive list of potential solutions
illustrates expert understanding of case, issues, how to analyse, and great decision argumen

HW#14 CE790

Case Study 13 – Competence - Sealed Drawings

Facts and Assumptions

good

An EIT in California worked on a project in Utah. A preliminary permit set was to be sent to the county. The drawings were finished on time and sent by Fed-Ex to the county in Utah. Since it is common to send permit sets without a PE stamp, the drawings were sent without the seal and signature of a licensed PE. By the time that it was realized that a seal was required the drawings were already on their way.

Recalling the drawings to get them stamped would delay the project and cause the client a great deal of difficulty. However, even if the drawings were brought back to the engineering firm, there still would be a problem. The engineer that worked closely with the EIT on the project was not licensed in Utah. The other engineer at the office that was licensed in Utah was out of the office and had no exposure to the project. A principal in the company working in a different office was licensed in Utah. This person usually did not get involved in the design work of projects. The office manager where the EIT worked had duplicates of the principal's PE stamps so that he did not need to bring the correct ones when he visited the office where the EIT worked.

Ethical Issues

very good -3 issues

The issues with this case could be stamping drawings with someone else's PE seal. Another issue could be having a licensed engineer stamp the drawings even though the engineer has no direct involvement or supervision over the design. There is also the issue of competence; if the EIT does not have enough experience and there is no one to review the drawing this may come into play.

Affected Parties

The client in Utah that needed the preliminary permit set might not get the product that is sealed as is required by the county. The company involved in the design process could have ramifications taken against them for falsely claiming that the drawings were approved by a licensed engineer directly involved in the design process. The principal that was licensed in Utah in addition to the EIT could be fired from the company for taking part in an act that could be seen as trying to deceive the client. The engineering firm could have the license to practice engineering revoked as well as the engineers involved in the incident. This would cause difficulties for the families of the engineers.

Potential Actions and/or Solutions and Consequences

very good

It is necessary to inform the client that the drawings are on their way without being stamped, however, they are in the process of being stamped and another set will be sent shortly. This will allow the drawings to be reviewed and discussed, but not approved until the stamped set arrives. This will not delay the client much and will keep the process moving although not completely smooth, moving is better than not. This also keeps the client informed to the problem so that

when they get the drawings they do not immediately disregard them because they are not stamped and contact the engineering firm complaining about the problem. This would probably help smooth things over with the client since they did not get what they asked for when they asked for it; at least they are aware that they did not get what they wanted before hand. It could however, lead to unpleasantness by the client toward the firm and they could not recommend the engineering firm.

Since the person directly involved with the project is not licensed in the state of Utah, and the county requires preliminary permit sets to be stamped prior to approval there are a few actions that can be taken. The engineer that is licensed in Utah, but out of the office can be located and informed of the project. The drawings can be reviewed by this person and approved as is if appropriate or the necessary changes can be made then the engineer can seal the drawings. This would be possible only if the engineer licensed in Utah was able to be found in a timely manner and was able to review the drawings. The consequences of this would be inconveniencing an employee because the requirements for the project were not completely understood at the time of accepting the project. The drawings would be delayed in reaching the client which has already been stated to be a problem. There would, more than likely, be extra costs associated with the drawings that the engineering firm would have to "eat."

potential solution

Another action that can be taken is to use the stamps of a principal engineer that is not in the office. This engineer does not normally work on the design aspect of projects, but is mainly focused on starting the projects. There are three ways in which this action can take place. First, the EIT could use the stamps from the drawer of the office manager without the knowledge of the principal engineer. Second, the EIT could get the principal engineer to agree to allow the EIT to use his seal. Finally, the EIT could get the principal engineer to review the drawings by submitting them over the network or by email. The principal engineer, although not familiar or normally functioning as the engineering in responsible charge of the design, could for the company, make a sacrifice and review the drawings and then seal them if there are no changes that need to be made before hand.

Out of the three ways in which the EIT could use the principal engineer's seal the last would result in the least harsh consequences. The first is down right stealing and misrepresenting oneself as the engineer in charge of the design, even though the seal is from someone who had no clue about the project. If the principal engineer found out that his seal was used without his permission and knowledge the EIT would most likely get fired. The engineer would then have to explain to the county in Utah that the seal was misused. This would result in negative publicity for the EIT, the engineer whose seal was used and for the engineering firm. The second is a little better because the engineer whose seal is going to used at least knows that it is being used. It still would be a misrepresented public statement, once the drawings were accepted by the county. If the county found out that the drawings were never reviewed by an engineer licensed in the state of Utah there could be heads rolling at the engineering firm. Finally, if the last option was selected and the principal engineer reviewed the drawings, made any improvements and corrections that were necessary, and then submitted them to the county then the only problem would be the delay. The engineering firm would probably have to take care of the expenses incurred by the client due to their lack of awareness. They still may lose the client for repeat

business, because they did not get what they wanted when they wanted it, but there would not be anyone getting fired nor would there be a misrepresented drawing at a county in Utah.

Obligations

There is an obligation to provide work that is professional and will uphold the integrity of the profession. Section II.2.a of the Code of Ethics states that "engineers shall undertake assignments only when qualified by education or experience in the specific technical fields involved." "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."

BER case 86-2 also references the code of ethics stating 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 states "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." This case refers to the action of stamping plans without reviewing them if the person submitting them is not registered engineer. The BER decided that is was unethical for the engineer to sign and seal plans that had not been reviewed and had not been under direct supervision and control.

Integrity

If the EIT used the stamps without permission or allowed the use of the seals without the two licensed engineers reviewing the drawings then the EIT is not acting in an ethical manner with good character. For there to be any integrity on the part of the engineer and the engineering firm the drawings must be reviewed by one of the two engineers that are licensed in Utah. Even though it is an inconvenience to the engineers who are licensed in Utah to it would be the best for the company. It would not be good for them or the company if it was found out that either of the seals was used improperly. They should do it for the good of the company; it also shows that they are of high moral standard. If they place their seal to the drawings that are to be submitted to the county without reviewing the drawings then they are not acting in a way that shows high moral character.

Competing Viewpoints and/or Arguments

The engineering firm could ask for an extension on the preliminary permit set submittal with the seal. They could submit the drawings without the stamp for initial review, and then submit it at the earliest possible date with the seal. They could offer to compensate the client for the costs that the client will have because of their delay. They could also submit the project late with the stamp.

Solution

The EIT should contact the client and let them know what is going on and why. The engineering firm should ask the client what they would like to do. The best solution would be to get the principal engineer a copy of the drawings for review, get them approved and mailed to the client as soon as possible. The client should be able to use the drawings that do not have the seal in the mean time, even though they will not be able to file them with the county. They may even be able to talk with someone at the county to get the submitted with a letter of intent to resubmit with a sealed set. The engineering firm should also reduce the billed amount for the inconvenience since it was the engineering firm's fault for not getting the necessary information about the details of the contract. This should help offset the cost due to the delay that the client would suffer.