



You Know You Can, but Should You and Will You? The Status of Master's Level Accreditation in Civil Engineering

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Abstract

In 2008, with the support of the American Society of Civil Engineers and the National Academy of Engineering, ABET lifted its prohibition on dual-level accreditation. Currently, only one school in the nation, The University of Louisville, has attained accreditation for both the bachelor's (BS) and master's (MEng) degrees in civil engineering. This paper examines the advantages and disadvantages of dual-level accreditation. The results of a survey of the civil engineers department head's council was used to explore how many programs intend to seek dual-level accreditation as well as the reasons for why or why they do not plan to seek accreditation of their master's programs. In addition, four in-depth interviews were conducted with department chairs from a variety of institutions to more fully explore the issues raised by this survey and past papers. The results of the survey and interviews reveal that there is not wide spread support for, and that most programs do not intend to pursue, dual-level accreditation. The three major reasons for not seeking dual-level accreditation were 1. not necessary, no motivation/advantage to becoming accredited; 2. increased workload, with no benefit; and 3. limits flexibility/accreditation process is too rigid and will stifle the innovation that is the hallmark of graduate-level education. These reasons were consistent across the survey and interviews. Many of the department chairs expressed frustration with the accreditation process for their bachelor's degrees and are unlikely to take on the additional burden of accrediting their master's degrees without a clear benefit.

Introduction

Policy Statement 465, which was unanimously adopted by the Board of Direction of the American Society of Civil Engineers (ASCE) in 2001, describes two paths¹ to fulfilling the Body of Knowledge². Both of these paths will ensure that a licensee has fulfilled the Body of Knowledge and includes at least one ABET/EAC accredited degree.

Path 1: $B^{\text{ABET}} + (M/30)^{\text{Validated}} \& E$

Where B^{ABET} is an ABET/EAC-accredited bachelor's degree in engineering, $(M/30)^{\text{Validated}}$ is a master's degree or 30 additional graduate or upper-level undergraduate coordinated credits related to civil engineering, and E is four years of progressive, structured engineering experience. Currently, ABET validates the undergraduate degree and NCEES validates the work experience. It is anticipated that the validation of the M/30 component could take several forms. Although an ABET/EAC accredited master's degree would be validated, the intent of this path was to provide additional flexibility to fulfill the path to licensure. It is most likely that an "approved outside entity" will be utilized to validate the M/30 component and CAP³ and NCEES are currently working to delineate how this validation process will work².

Path 2: $B + M^{\text{ABET}} \& E$

Where B is a bachelor's degree that may or may not be ABET/EAC accredited, M^{ABET} is an ABET/EAC-accredited master's degree in engineering, and E is four years of progressive,

structured engineering experience. This path was developed to allow those without an ABET/EAC accredited bachelor's degree an opportunity to become an engineer.

ASCE's Task Committee on Academic Prerequisites for Professional Practice (TCAP³) estimates that it will take about 20 years to fully implement PS 465. This time frame is needed to convince and persuade NCEES to change their model law, academic institutions to accredit master's degrees and modify undergraduate curriculums, and licensed engineers to accept their heightened mentoring responsibilities³. This process has been started on several levels and some progress has been made^{4,5,6,7}. The argument for "raising the bar" and implementing the Body of Knowledge has been the subject of many papers and, thus the intellectual discussion of this policy is in full swing^{8,9}.

One of the milestones identified on the master plan for implementing PS 465 was lifting ABET's ban on dual-level accreditation such that "Path 2" was a viable option. The persuasion of ABET to lift this ban was delegated to the TCAP³ Accreditation Committee³. At the time of writing, the model law has not been changed to reflect the increased educational requirements recommended by PS 465 by any of the NCEES member boards. It was hoped that at least one state would adopt the new model law within two years of allowing dual-level accreditation³. The goal of this paper was to focus on the status and willingness of departments to accredit their master's degree programs even without the changes in the model law.

Dual-Level Accreditation and its Role in PS 465

To implement PS 465, engineering interns on the second path to licensure will need to complete an accredited master's degree program. A successful policy change was achieved in 2008 when ABET, Inc. removed its prohibition on dual-level accreditation, which allows engineering programs to accredit both their bachelor's and master's degrees. Currently, there are 231 programs in the United States that grant accredited bachelor's degrees in civil engineering¹⁰. The University of Louisville, which had previously accredited its master's degree (MEng) instead of its bachelor's degree (BS), is the only school in the nation that has attained accreditation for both the bachelor's and master's degrees in civil engineering^{10,11}.

Methods Employed

A short eight-question survey was emailed to the members of the Department Heads Council to ascertain the status of dual-level accreditation in civil engineering. Although the response rate was less than hoped at 36 responses, the author believes that the views expressed by the respondents are representative of civil engineering departments in the United States and was similar to the response rate reported by Smerdon, et al¹². The questions asked were:

1. When is your next self study due?
2. Do you offer a master's degree in civil engineering (MCE, MSCE, or similar)?
3. If so, do you plan to seek accreditation for your master's program?
 - a. Next visit
 - b. Definitely for the next accreditation cycle
 - c. Perhaps in the future
 - d. No plans

4. Regardless of whether you intend to seek accreditation for your master's program, do you believe that dual accreditation would (select all that apply):
 - a. Add significantly to your educational assessment work load
 - b. Enhance your reputation
 - c. Improve your ability to recruit qualified students
 - d. Differentiate your program from other programs
 - e. Enhance the quality of your master's program
5. Rate the influence of the following factors on your willingness to seek accreditation for your master's program (select all that apply):
 - a. PS 465 accepted by NCEES
 - b. Many other schools attain dual level accreditation
 - c. Additional resources from your college or department for assessment
6. If you do not plan to seek accreditation, provide your top three reasons why you do not plan to do so.
7. If you plan to seek accreditation, provide your top three reasons why you plan to do so.
8. Please provide any additional comments that may shed light on your opinions of dual accreditation.

Four department chairs were interviewed to obtain more in-depth responses on the issue of dual-level accreditation. These department chairs represent a variety of academic institutions that offer graduate degrees in civil engineering:

- public with a total enrollment of 42,600
- public with a total enrollment of 11,800
- private with a total enrollment of 23,500
- private with a total enrollment of 10,600

Results

Of those responding to the survey, 86% offered a MCE, MSCE, or similar. None of the respondents plan to seek accreditation for their master's programs for the next accreditation cycle and only 17% may consider seeking accreditation in the future. The date of the next upcoming on-site visit from ABET was evenly distributed amongst the departments. One commenter noted that they chose to drop their plans for accrediting their master's degree based on program reviewer feedback; the reviewer "indicated that they [the students enrolled in the program] would need approximately 2 years of prerequisites" to fulfill the requirements for the master's degree. This department decided that those requirements were too onerous and dropped the program.

Approximately 87% of the respondents believe that seeking accreditation will significantly add to their workload without improving their program. Only about 30% of respondents believe that dual-level accreditation will enhance their reputation or quality, improve their ability to recruit qualified students, or differentiate their program. Comments associated with this question were overwhelmingly negative with most of the negative comments directed at ABET. For example, one commenter stated "it would just give ABET another way to make money and [mess] with us," while another stated "we are strongly opposed to master's level accreditation because graduate programs should be vastly different from one school to the next and they must be free

to be out in front of the state of the practice... Accreditation will kill that ability.” The only positive comment was that “the additional assessment work should not be that significant.”

The most significant factor that would influence schools to seek dual-level accreditation was if many other schools attained dual level accreditation (63%) followed by NCEES changing the model law (46%) (you could select more than one influence, so the percentages are greater than 100%). The department chairs indicated that having additional resources would help with the process (38%), but that this was not a major hurdle to the process. Several commented that convincing faculty of the importance of attaining accreditation would be the largest hurdle and were disappointed that this was not offered as a selection.

In free format, the respondents were asked to list the top three reasons why they would not seek accreditation for their master’s degree and the top three reasons why they would. While the order of the top three reasons varied, the reasons given were very similar amongst the respondents and can be summarized as follows:

- Not necessary, no motivation/advantage to becoming accredited
- Increased workload, with no benefit
- Limits flexibility/accreditation process is too rigid and will stifle the innovation that is the hallmark of graduate-level education

Most of the respondents were very negative about the concept of accrediting their master’s degree, thus, there were not many reasons given for why a program would seek accreditation. However, the reasons provided can be summarized as follows:

- If other schools do it, then everyone will need to do it to stay competitive
- Reputation
- Increased value of degree

The informal interviews with the four department chairs yielded similar results as the survey, but the responses were obviously more in-depth. None of the four chairs interviewed intend to seek master’s level accreditation in the foreseeable future. All of the chairs expressed a deep concern over the time/cost it would take to adequately assess their master’s programs. Two out of the four stated that their frustrations with the undergraduate accreditation process make them unwilling to take on additional assessment responsibilities. They cited lack of consistency with program evaluators as their largest concern. Only one of the four chairs interviewed was concerned about the effect accreditation would have on their ability to offer a flexible, dynamic graduate program. All of the chairs saw some value in the concept of accrediting master’s degrees, especially MEng or professional master’s degrees, as a way to ensure quality, but did not see the benefits of accreditation as outweighing the costs.

Discussion and Conclusions

Some of the concerns reported by the department chairs were similar to those described by Russell, et al.¹³ and Smerdon, et al.¹² Russell, et al.¹³ described three major categories of concern: compatibility, cost, and competition. The first two concerns are reflected in the responses described above, however, none of the respondents to the survey or those interviewed indicated that competition was a problem or a concern, although they did state that they would

only be likely to pursue accreditation if other programs did so. Additional concerns about dual-level accreditation were discussed in a paper written by Smerdon, et al.¹². The concerns addressed in this paper included fears that a department would have to accredit all of their master's degrees if they sought accreditation for any of their graduate degrees, although this concern was not raised by the department chairs that responded to this survey or who were interviewed. The perceived limits on flexibility and increased workload, however, were concerns addressed by Smerdon, et al.¹² that still persist. Most of the concerns about workload from the respondents of this current survey, however, were expressed in terms of cost/benefit; most did not see that the additional work would provide them with enough benefit. Although the Russell, et al.¹³ and Smerdon, et al.¹² papers attempt to assuage these concerns, skepticism about dual level accreditation is still widespread and has not dissipated in the intervening years.

Although it has been possible for several years to attain dual-level accreditation, only one school has done so. The responses from the survey indicate great antipathy towards the accreditation of master's degrees. The respondents expressed a great deal of frustration with the accreditation process for their undergraduate program and are not likely to embark upon a second accreditation process without a clear benefit. Until the model law is changed to be compliant with PS 465 by NCEES, the department chairs do not believe that there is a strong reason for their programs to seek accreditation for their masters' degrees.

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