

AN OPINION SURVEY ON CERTIFICATION OF CIVIL ENGINEERS IN SAUDI ARABIA

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Abstract

The issue of certification of engineers practicing in Saudi Arabia has received a great deal of attention lately in view of the fact that the local engineering body comprises multinationals whose academic background and professional preparedness vary considerably and that the engineering profession is facing new challenges. A broad-based survey was conducted among the practicing civil engineers to seek their opinion on several key issues related to certification.

In this paper, the results of this survey are presented to draw attention to the broader opinion of the Civil Engineering body in Saudi Arabia on certification. Results emphatically show that there is an almost unanimous support for certification, regardless of the nationality of the engineers. Most agree that a bachelor's degree in Civil Engineering should be the minimum academic qualification and that at least two years of professional experience after graduation are needed for certification. The majority of the respondents does not favor a mandatory examination for certification for all qualified candidates.

Introduction

In order to ensure that a practicing engineer has the necessary technical background, knowledge and the professional preparation to function as a qualified engineer who can offer expert engineering services, some form of certification is necessary. Through certification, distinction can be made between qualified and unqualified professionals, thereby protecting the engineering profession from the services of unqualified engineers. Most developed countries have adopted some form of certification or licensing to regulate the engineering profession (1-4).

As the engineering body in Saudi Arabia comprises multinationals who have different academic background and professional preparedness, the need for certification emerges from this apparent diversity in educational background and technical competence. On recognition of this apparent need and the importance of certification in Saudi Arabia, a broad-based survey was carried out to find out the level of support for it among the practicing engineers and to collect opinions on various issues relevant to certification.

The survey was aimed at practicing Civil Engineers only, as the planned survey is part of an exploratory project on certification funded by the University. The primary objective of this paper is to present the findings of this survey which are highly informative and useful to structure a certification policy.

A Survey

The main purpose of the survey was to get some feedback on several key questions related to certification. A questionnaire designed for the survey using both Arabic and English is shown in Appendix I. It consisted of three parts of which the first two were designed with fact-finding questions. In the first part (Part A), the personal data about the respondents are gathered through eight questions. In the second part (Part B), there are nine questions related to certification. In this section, a respondent answers if he is certified, if practicing Civil Engineers are to be certified, his opinion on the minimum qualifications, both academic and practical experience, and who should handle certification. Where an answer would imply a degree of agreement or disagreement, the response boxes were designed accordingly to record the level of agreement. In the question no.19 on the agency who should handle certification, the Engineering Committee and the Chamber of Commerce were added in view of their closer ties to the profession. The questionnaire ends with Part C where a responder is given the opportunity to provide additional comments about the certification of Civil Engineers, if he desires so.

Over 900 survey forms were distributed to individuals, companies and government organizations throughout the country. Additionally, the offices of the Engineering Committee and the Chamber of Commerce in Dammam, Riyadh and Jeddah were visited to seek their support in their survey. Over 400 questionnaires were received fully filled-in from all regions of Saudi Arabia. This represented a good sample to provide some insight on the majority opinion.

Data Analysis

The analysis of responses received for each question is given here.

Part A : Personal Data

1. Who is your employer?

- (a) Government 46% ; (b) Semi-government 6%
- (c) Private 31% and (d) Yourself 16%

Over 50% of the respondents are from the government and semi-governmental agencies.

2. What is the nature of the work of your employer?

- (a) Education 4% ; (b) Consulting 48% ; (c) Construction 33%
- (d) Research 3% and (e) Others 13%

About 13% of the surveyed persons are working in the field designated as 'Others', which include supervision, project management, design, utility, maintenance and planning.

3. **What is your occupation?**

- (a) Practicing Civil Engineer 56% ; (b) Administrator 22%
(c) Academician 4% and (d) Others 18%

4. **What is your nationality?**

- (a) Saudi 62% and (b) non-Saudi 38%

Although the survey indicates an approximate 2:1 ratio for Saudi to non-Saudi Civil Engineers, this ratio may not accurately reflect the actual composition of the Civil Engineering body in Saudi Arabia. This is because the governmental and semi-governmental organizations were asked to encourage their civil engineers to respond and a majority of these engineers are Saudi nationals. Lack of responses from many private organizations who employ more foreigners has influenced this finding. Non-Saudi engineers are mostly Egyptians, Jordanians, Palestinians, Pakistanis, Indians, Filipinos, Sudanese and Syrians.

5. **How many years of experience do you have, after graduation?**

- (a) Less than 2 yrs. 5% ; (b) from 2–5 yrs. 7% ; (c) 5–10 yrs. 13%
(d) 10–20 yrs. 36% and (e) over 20 yrs. 38%

It is interesting to know that about 74% of the respondents have over 10 years of work experience. This strengthens the findings of this survey, as most engineers are well-experienced to express a firm opinion on issues related to certification.

6. **If you are Civil Engineer, what is your highest degree?**

- (a) Diploma 4% ; (b) Bachelor degree 51%
(c) Master degree 13% ; (d) Doctorate degree 6% and
(e) Others 26%

About 26% of the respondents do not have a Civil Engineering degree and over 70% have degrees in Civil Engineering.

Part B : Certification in Civil Engineering

1. **Are you a certified Civil Engineer?**

- (a) Yes 31% ; (b) No 69%

Response to this question is influenced by the misunderstanding of certification as evidenced from the reply to the next question (If you are a certified Civil Engineer, who certified you?). Answers mentioned various agencies and institutions which are not officially entrusted with certification. In view of this, the actual percentage of non-certified Civil Engineers would far exceed 69%.

2. **In your own opinion, certification of Civil Engineers is:**

- (a) very important 64% ; (b) important 32% and
(c) not important 4%

It is highly encouraging to note that only 4% of the surveyed sample indicated that certification is not important. Thus, almost all practicing Civil Engineers consider certification is important for the profession.

The next three items of the questionnaire were statements for which responders were asked to indicate their level of agreement or disagreement by ticking the appropriate box. The responses are shown collectively in Table 1.

Table 1. Responses to some statements

Statements	Strongly Agree	Agree	Disagree	Strongly Disagree
All practicing Civil Engineers in Saudi Arabia should be certified	54%	37%	8%	1%
Graduates from Saudi University should be exempted from certification	5%	15%	40%	40%
All Civil Engineers must pass a mandatory EXAM for certification	36%	43%	15%	6%

It is interesting to note that close to 80% of respondents have indicated that the graduates from Saudi Universities should not be exempted from the requirement of certification, considering the fact that about 62% of the respondents in this survey are Saudis. This implies that there is a broad-based consensus that all Civil Engineers practicing in Saudi Arabia should be certified, regardless of their educational background and nationality. However, a majority of the responders (about 79%) are not in favor of a mandatory examination to determine eligibility for certification.

3. **What is the minimum degree needed for a Civil Engineer to be certified?**
 (a) none 0% ; (b) Diploma 11% ; (c) Bachelor degree 86%
 (d) Master degree 4% and (e) Doctorate degree 0%

The vast majority endorses the commonly held notion that a bachelor degree in Civil Engineering would be adequate as the minimum academic qualification required for certification.

4. **Minimum number of years of experience required for a Civil Engineer to be certified is:**
 (a) none 7% ; (b) one year 5% ; (c) 2 yrs. 21% ; (d) 3 yrs. 23%
 (e) four years 17% and (f) five years or more 27%

It is evident that there is no clear consensus with regard to the minimum practical experience requirement for certification, as the respondents are more or less uniformly divided in favor of 2, 3, 4 and 5 or more years of experience after graduation. However, it seems that at least 2 years of practical experience after graduation would be acceptable to the engineering body, as the cumulative percentage for 2 years is in the vicinity of 88%.

5. **Who should handle the certifying process for Civil Engineers in Saudi Arabia?**

- (a) Universities 16% ; (b) Independent agency 30%
(c) Engineering Committee 50% ; (d) Chamber of Commerce 3%
and (e) Others 1%

Almost half of the responders suggest that the Engineering Committee should handle all issues related to certification.

Part C : Additional Comments

Many responders utilized this optional part by providing additional input. The comments touched various topics from short courses needed to prepare for the certification examination to exemption of examination for Civil Engineers with long track record. Some of the comments which have multiple responders are listed below.

- Certification should be adopted immediately.
- Individual certificates issued to engineers should be renewed after a specified period.
- Short courses should be offered to help engineers prepare for the certification examination.
- Certification should specify the specialty within the Civil Engineering (e.g. Structures, Transportation, Geotechnical, etc.).
- Highly experienced Civil Engineers should be exempted from examination, if any.
- Other engineering professionals should also be certified.
- There should be some mandatory courses a Civil Engineer must pass before certification.
- Certified engineers should be entitled to a higher salary than non-certified engineers.

This survey reveals the majority consensus of the Civil Engineers working in Saudi Arabia on four important questions, namely:

- (a) is certification necessary in Saudi Arabia?
- (b) what should be the minimum academic qualification?
- (c) what should be the minimum practical experience after graduation?
- (d) should there be a mandatory examination for all?

The responses received from the survey on the above will be helpful in the strategic development of the certification process.

Conclusions

The following conclusions are drawn from this survey:

1. Over 90% of the respondents which included both Saudi and non-Saudi nationals have supported certification, over 50% supporting 'very strongly'.
2. There is a clear consensus that a bachelor's degree in Civil Engineering would be a sufficient academic qualification for certification.
3. Although there is no clear agreement with regard to the minimum number of practical experience, most respondents have indicated that at least two years of experience after graduation would be necessary.
4. The majority do not support the idea of a mandatory examination for all engineers who would like to be certified.
5. The organization preferred by the most to handle the administration of certification is the Engineering Committee of Saudi Arabia.

Acknowledgement

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References

1. The Institution of Civil Engineers, "Rules of the Professional Examination," *ICE 43*, UK, 1979.
2. Canadian Council of Professional Engineers, "Syllabus of Examination," Canada, 1986.
3. Texas Board of Professional Engineers, "The State of Texas Engineering Practice Act and Rules Concerning Practice of Engineering and Professional Engineering Licensing," Austin, Texas, USA, 1999.
4. Smith, E.M., "To License or not to License, That's the Question," *Mechanical Engineering Magazine*, American Society of Mechanical Engineers, May, 1999.

Appendix I: The Questionnaire

Thank you very much for spending your precious time filling-in this questionnaire.

Please tick [✓] the box to the right of your choice. Fill-in the *specify* cell, if applicable.

A. PERSONAL DATA

1. Who is your employer?

Government Semi-government Private Yourself

2. What is the nature of the work of your employer?

Education Consulting Constructing Research

Others _____

3. What is your occupation?

Practicing Civil Engineer Administrator Academician

Others _____

4. What is your nationality?

Saudi Non Saudi *Specify* _____

5. Where is the location of your work?

Specify the city name _____

6. How many years of experience do you have, after graduation?

<2 Years 2-5 Years 5-10 Years 10-20 Years >20 Years

7. If you are a Civil Engineer, what is your highest degree?

Diploma B.S. M.S. Ph.D.

Others, *specify* _____

8. If you are NOT a Civil Engineer, what is your academic qualification?

Highest degree _____ Specialty _____

B. CERTIFICATION IN CIVIL ENGINEERING

If you are NOT a Civil Engineer, please go to item # 13.

11. Are you a certified Civil Engineer?

Yes No

12. If you are a certified Civil Engineer, who certified you?

Name of certifying agency: _____

Country: _____

13. In your own opinion, certification of Civil Engineers is:

Very important Important Not important

14. All practicing Civil Engineers in Saudi Arabia should be certified:

Strongly agree Agree Disagree Strongly disagree

15. Graduates from Saudi Universities should be exempted from certification:

Strongly agree Agree Disagree Strongly disagree

16. All Civil Engineers must pass a mandatory EXAM for certification:

Strongly agree Agree Disagree Strongly disagree

17. What is the minimum degree needed for a Civil Engineer to be certified?

None Diploma B.S. M.S. Ph.D.

18. Minimum number of years of experience required for a Civil Engineer to be certified is:

0 1 2 3 4 > 5

19. Who should handle the certifying process for Civil Engineers in Saudi Arabia?

Universities Independent agency Engineering Committee

Chamber of Commerce Other, specify _____

C. ADDITIONAL COMMENTS

Please provide any additional comments about certification of Civil Engineers.

Thank you for your comments.