AC 2011-2183: QUALIFICATIONS OF SAFETY PROFESSIONALS IN THE U.S. CONSTRUCTION INDUSTRY

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Qualifications of Safety Professionals in the U.S. Construction Industry

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Abstract
Industry standards vary when hiring a safety professional for the commercial construction industry. Commercial construction companies consider national certifications, professional experience, field experience, and educational credentials when considering viable candidates for construction safety positions. This paper presents the finding of a study conducted to identify qualifications needed for construction safety professionals. Quantitative and qualitative data collected from U.S. commercial construction companies were analyzed to determine the qualifications needed for construction safety positions and establish consistency of value placed on the identified qualifications. Findings of the study improve understanding of the needed qualifications of construction safety professionals and can lead to more effective construction safety education through enhanced training methods and procedures.

Introduction
Disproportionately high incidence of accidents and fatalities has earned the construction industry the unfortunate and unenviable reputation of being one of the most dangerous occupations[1]. In fact, according to the U.S. Bureau of Labor Statistics, in 2006, 1,258 (22%) of the 5,703 fatal work injuries in the U.S. were in the construction sector, and that same year, the construction industry accounted for 10.4 percent of the 3.9 million nonfatal workplace injuries in the United States[2].

Safety Professionals
In an effort to mitigate injuries and fatalities, construction employers are taking on the responsibility of ensuring a safe working environment for their employees[3]. In this effort, construction organizations have recognized the increasing importance of risk management, and many companies have established risk management departments to control the exposure to risk[4]. However, there is no one standard set forth detailing the qualifications of risk management and/or safety professionals in the construction industry. In example, the Board of Certified Safety Professionals has attempted to set safety professional standards through certifications. Certifications for a construction health and safety technician require candidates to have:

> A high school diploma or GED and 3 years of construction experience, where at least 35% of the work includes safety duties or,
>
> An associate's degree or higher, and 2 years of construction experience with at least 35% of the work including safety duties or,
>
> Any Accreditation Board for Engineering and Technology (ABET) accredited safety-related associate degree or higher and 1 year of construction work where safety is at least 35% of the job duties[5].

The board of safety professional guidelines detail basic requirements but specific safety duties, and or degrees are not defined. Other certifying organizations detail similar requirements but

again give little as to specific requirements. Thus, in an attempt to determine the qualifications of safety professionals in the commercial construction industry, the authors have gone to the source. To the companies that hire and employ construction safety professionals that perform risk management functions on a daily basis.

Objectives

The primary objective of this research was to:

1) Collect quantitative data to analyze and identify the qualifications needed for construction safety personnel in the U.S. commercial construction industry and to establish consistency of value placed on the identified qualifications.
2) Collect qualitative data to identify the qualifications needed for construction safety personnel in the U.S. commercial construction industry and to establish consistency of value placed on the identified qualifications.

Methodology

A survey instrument (Appendix A) was developed to quantitatively and qualitatively identify the qualifications needed for construction safety personnel in the U.S. commercial construction industry and to establish consistency of value placed on the identified qualifications. Research study participants were a representative convenience sample of construction safety professionals employed by construction entities located within the Pacific Northwest regions of the United States. General contractor and construction management entities that were listed in the Engineering News Record, Top 400 Contractors in 2010 were targeted for the study because an assumption was made that companies listed on the ENR 400 list would be large enough to have dedicated safety programs that employ full time safety professionals. All of the construction entities participating in the survey agreed to assist in the survey process by ensuring that the employees completed and returned the survey in a timely manner. No minimum sample size was required because no specific statistical testing was to be performed. However, to advance the validity of the findings, an attempt was made to obtain as large a number of responses as possible, thus the survey link was provided to 87 safety professionals.

Quantitative Analysis

Completed surveys were analyzed to ensure all of the responses were completed and that the responses were within the range of responses allowed in the survey instrument. An initial survey response of 69 was received and 100% (69 of 69) met the study criteria for data analysis. All resulting data gathered from the completed surveys was organized and converted into an electronic format for data analysis. Descriptive statistical analysis was conducted on the resulting data to identify the qualifications needed for construction safety personnel in the U.S. commercial construction industry and to establish consistency of value placed on the identified qualifications. Calculations performed on the survey data consisted of the summing of the responses of the surveyed participants and determining answers with the highest mean score.

Findings

The following are the survey questions and the responses for each question.

Question 1. - Does your company employ full time construction safety professionals?

#	Answer		Response	%
1	Yes		69	100%
2	No		0	0%
	Total		69	100%

Question 2. - Does your company employ full time safety professionals for the majority of your projects?

#	Answer		Response	%
1	Yes		46	69%
2	No		21	31%
	Total		67	100%

Question 3. - When hiring a safety professional do you prefer to place a current employee in the safety professional position or hire a new employee to fill the position as a safety professional?

#	Answer		Response	%
1	Place a current employee in the safety professional position.		35	52%
2	Hire a new employee to fill the position as a safety professional.		32	48%
	Total		67	100%

Question 4. - When considering an applicant for a position as a safety professional, which is considered more valuable, construction experience or formal education (i.e. college degree)?

#	Answer		Response	%
1	Construction experience.		42	64%
2	Formal education (i.e. College degree).		24	36%
	Total		66	100%

Question 5. - When considering an applicant for a position as a safety professional, which is considered more valuable, OSHA safety certifications (ie: OSHA 10 and 30 hour certification) or formal education (i.e. college degree)?

#	Answer		Response	%
1	OSHA safety certifications (ie: OSHA 10 and 30 hour certification).		28	42%
2	Formal education (i.e. College degree).		38	58%
	Total		66	100%

Question 6. - When considering an applicant for a position as a safety professional, which is considered more valuable, construction experience or OSHA safety certifications (i.e. OSHA 10 and 30 hour certification)?

#	Answer		Response	%
1	Construction experience.		48	73%
2	OSHA safety certifications (i.e. OSHA 10 and 30 hour certification).		18	27%
	Total		66	100%

Question 7. - When considering an applicant for a position of safety professional is a college degree required?

#	Answer		Response	%
1	Yes		18	27%
2	No		48	73%
	Total		66	100%

Question 7a. -When considering an applicant for a position as a safety professional, which is your preferred degree, construction management, civil engineering, business, industrial safety, or any degree?

#	Answer		Response	%
1	Construction Management		1	6%
2	Civil Engineering		0	0%
3	Business		0	0%
4	Industrial Safety		16	89%
5	Any Degree		1	6%
	Total		18	100%

Question 8. - When considering an applicant for a position of safety professional, are OSHA certifications required?

#	Answer		Response	%
1	yes		38	58%
2	No		28	42%
	Total		66	100%

Question 8a. - When considering an applicant for a position as a safety professional, which of the following OSHA certifications are preferred, OSHA 10-Hour, OSHA 30-Hour, OSHA 500, OSHA 501, or no certifications required?

#	Answer		Response	%
1	OSHA 10-Hour		0	0%
2	OSHA 30-Hour		12	32%
3	OSHA 500		20	53%
4	OSHA 501		5	13%
5	No certifications required		1	3%
	Total		38	100%

Question 9. - When considering an applicant for a position as a safety professional, is fluency in languages other than English required?

#	Answer		Response	%
1	Yes		5	8%
2	No		60	92%
	Total		65	100%

Qualitative Research Design
The qualitative portion of the study was not built upon a grounded theory nor bounded system. Rather it was conducted simply to discover and understand a phenomenon, a process, and the perspective of those involved in the study.

Qualitative Research Results
Qualitative data from the survey was organized, categories were generated, and themes and patterns were developed to critique emergent understandings and alternative explanations. Survey feedback included 40 write-in responses where survey participants were asked if they had any additional comments relating to the hiring of applicants for a position as a safety professional. Upon review of the comments several themes and/or categories became apparent, including Construction Experience, Safety Professional / Certifications, Formal Education, Combination (Experience / Education / Certifications), Communication Skills, and Other. The following are some of the comments made from each theme and/or category.

Many commented that it was their belief that construction experience was more important than formal education and/or certifications.

> "The OSHA certification can easily be obtained, but it is the construction experience that is very difficult to achieve if the applicant is fresh out of school."

> "Must be well rounded in the field and in the trades to understand all of the work duties and the ability to speak to the field people and understand what their needs are on the job."

> "Must be able to apply OSHA rules to field conditions and work."

Others commented that the need for safety certifications and a trend in the industry is to require individuals with safety certifications.

> "It depends on what the job requires, certain owners require the safety professional to have the OSHA 500 training or the CHST. It all depends on the owner and what the job needs."

> "Our company requires a STS, CHST, OSHT, ASP or a CSP."

> "Most levels require certifications (CSP, CHST, OHST, CIH) to advance."
>
> "Owners are requesting Safety Professionals with the OSHA 500 Certification."
>
> "It is almost equally as important that they have the correct certifications and now it is becoming as important to have college or certifications."

Others commented on the need for formal education.

> "As the direction of safety professionals has evolved we now have more college degreed safety professionals available. The first thing that I look at when hiring a safety professional is if that person shows a passion and commitment to the profession. When someone graduates with a degree in safety engineering it shows commitment. When they stay in the profession it shows passion. We can teach someone about construction safety but you cannot teach someone how to have passion and how to be committed."
>
> "Education with some industry application (i.e. construction experience such as an internship are very valuable). Certifications such as OSHA courses may not be required but are important to show that the student has a general industry understanding, which they have applied to their education as well. Coming out of school understanding how to use resources is one of the very important assets over trying to memorize rules and regulations."

Many made additional comments that communications skills are the most important quality looked for when hiring safety professionals.

> "One of the most important characteristics of a safety professional is their ability to work with people on every level."
>
> "Having good people skills are important as well as having a good approach on coaching and correcting workers."

Expectedly, most commented that it is a blend of education, certifications, and construction experience that is most desired.

> "Our recommendation is a baseline of education and then working to achieve experience and certifications."
>
> "Experience and education is the perfect combination for the safety field. If you do not have the experience then the education alone does not give you the credibility with the crews in the field."

Conclusions

Survey participants consisted of 69 full time construction safety professionals. Statistical responses give evidence that construction experience is considered most valuable when hiring

safety professionals, followed by formal education (i.e. college degree), and then lastly safety certifications. It appears that one reason for the safety certifications being considered least valuable is that most companies will provide safety training once an employee is employed. Although construction experience was determined as most valuable, education was viewed as very valuable when paired with construction experience. One quarter of those surveyed require a college degree while three quarters require no college degree, and out of those companies that require a college degree, a degree in industrial safety is most preferred.

These findings are far from conclusive, however the results of the survey do give some indication of a need for formal education, certifications, and construction industry experience. However, the results seem to mirror the quandary of "education vs. experience" when hiring of personnel for any position.

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Appendix A – Study Survey

Safety Professional Survey Questions

1. Does your company employ full time construction safety professionals?
   - Yes / No

2. Does your company employ full time safety professionals for the majority of your projects?
   - Yes / No

3. When hiring a safety professional do you prefer to:
   - Place a current employee in the safety professional position.
   - Hire a new employee to fill the position as a safety professional.

4. When considering an applicant for a position as a safety professional, which is considered more valuable?
   - Construction experience.
   - Formal education (i.e. College degree).

5. When considering an applicant for a position as a safety professional, which is considered more valuable?
   - OSHA safety certifications (ie: OSHA 10 and 30 hour certification).
   - Formal education (i.e. College degree).

6. When considering an applicant for a position as a safety professional, which is considered more valuable?
   - Construction experience.
   - OSHA safety certifications (i.e. OSHA 10 and 30 hour certification).

7. When considering an applicant for a position of safety professional is a college degree required?
   - Yes / No

8. When considering an applicant for a position as a safety professional, which is your preferred degree?
   - Construction Management
   - Civil Engineering
   - Business
   - Industrial Safety
   - Any Degree

9. When considering an applicant for a position of safety professional, are OSHA certifications required?
   - Yes / No

10. When considering an applicant for a position as a safety professional, which of the following OSHA certifications are preferred?
    - OSHA 10-Hour
    - OSHA 30-Hour
    - OSHA 500
    - OSHA 501
    - No certifications required

11. When considering an applicant for a position as a safety professional, is fluency in languages other than English required?
    - Yes / No

12. Do you have any additional comments relating to the hiring of applicants for a position as a safety professional?