

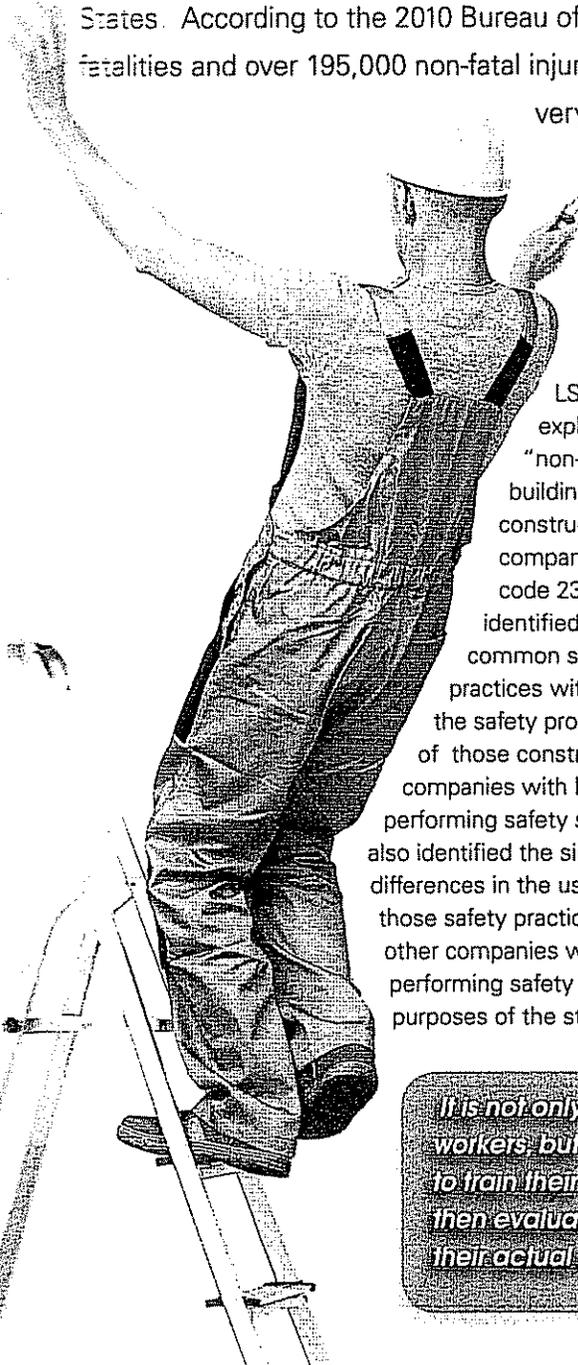
Fall 2013

LSU STUDY FINDINGS SUMMARY

“A MANAGEMENT DRIVEN SAFETY ELEMENTS MODEL FOR THE BUILDING CONSTRUCTION INDUSTRY”

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The construction industry is a dangerous occupation and has the highest fatality rate of any industry in the United States. According to the 2010 Bureau of Labor Statistics, from 2001 through 2010 there were over 10,000 fatalities and over 195,000 non-fatal injuries in the construction industry alone. These injuries and fatalities are very costly in terms of lost time, workers' compensation costs and lost productivity. This is in addition to the unimaginable toll in human suffering and financial ruin on family and friends caused by the death or disabling injury of a loved one.



The LSU study explored “non-residential building” (NRB) construction companies (NAICS code 2362), and identified the common safety practices within the safety programs of those construction companies with higher performing safety scores, and also identified the significant differences in the usage of those safety practices from other companies with lower performing safety scores. For purposes of the study, any

identifiable, documented and measurable item of a company's safety program is referred to as a “Safety Element.” The sum of all the Safety Elements was considered a “Safety Program.”¹

The study found nine Safety Elements that had a statistically significant higher usage among companies with higher performing safety scores than companies with lower performing safety scores.¹ A Level II Safety Elements Model was developed from the results of the study, with Level I consisting of the nine Safety Elements mentioned above and Level II consisting of an additional 20 “baseline” Safety Elements that are used by over 90% of construction companies with the higher performing safety scores

STUDY'S LITERATURE RESEARCH ON SAFETY

Prior studies have noted that there are usually a number of independent trades in the construction industry working parallel with each other, which can sometimes lead to confusion on safety responsibilities, further complicating the ability to have an effective safety management program.² Adding to the confusion of safety responsibilities, there is sometimes also a difference in perception between management and the workforce in the

assessment of the safety climate within the company, wherein management perceives a more positive safety climate at times than is the perception of their workers.³ This can partially be explained by most construction companies informally selecting the routine safety practices within their own safety program, rather than

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considering other possible safety programs.⁴This becomes even more critical when seen in the light of several other studies that show human error is the main reason for up to 80% of all work accidents.⁵

Research studies have shown that most effective safety programs have upper management support, critical to an effective safety program.⁶ However, although a majority of contractors provide general safety and health training for their workforce, most of them do not quantitatively evaluate their training programs for a actual reduction in hazardous behaviors, increased job satisfaction or productivity.⁷ It was recognized as far back as 20 years ago that successful injury control programs require a combination of strong management and worker training. However, even though training is viewed as an important safety support function, it is still mostly an "off-

line" function.⁸ Prior studies stressed the need for "on-the-job" support and training. It is not only important

to train workers, but it is equally important to train their field supervisors and then evaluate them on the basis of their actual safety performance.⁹ Another often overlooked area of safety is the safety training of sub-contractors, who are encouraged to be involved in safety practices with their general contractor.¹⁰ Both general contractors and their sub-contractors are encouraged to provide training to their key employees, and one study went so far as to suggest that construction companies should actually "mentor" their sub-contractors to improve safety.¹¹

Based on the conclusions of prior studies, it becomes even more critical for management at all levels to take on personal responsibility for a more positive safe working environment. The General Duty Clause of OSHA requires that every employer furnish to each of its employees a place of employment which is free from recognized hazards that are causing or are likely to cause death or physical harm.¹² It therefore is the duty of each employer to identify and mitigate any safety hazards that might cause death or physical harm.

METHODOLOGY OF LSU STUDY

The OSHA TCR (Total Case Rate) data used in the current study is from the year 2008. The data covered 69 Louisiana-based NRB construction companies with 40 or more employees. Out of the 69 companies there were 34 (49.3%) NRB companies with high performing safety scores and 35 (50.7%) with low performing safety scores.¹³ For purposes of the study, companies with less than one case incident per 100 employees per year represents a high performing safety score, while a company with one or more case incidents

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LEVEL I OF SAFETY ELEMENTS MODEL

At 90% confidence level, the 13 companies with higher performing safety scores had a statistically significant higher usage of the following 9 Safety Elements than the 20 companies with lower performing safety scores:

- (1) a designated safety budget as part of the normal operating budget;
- (2) a formal safety committee that meets on a regular schedule;
- (3) pays employees for the hours they spend attending voluntary off-hour safety training sessions;
- (4) a formal personal protective equipment training program;
- (5) written and formal safety goals that are updated periodically;
- (6) safety training for subcontractors;
- (7) detailed safety reports to employees on a regular basis;
- (8) regularly scheduled safety training programs for existing employees;
- (9) a disciplinary procedure for employees who commit unsafe acts.

LEVEL II OF SAFETY ELEMENTS MODEL

The primary justification for additional Level II set of Safety Elements is the argument that using only the 9 statistically significant Level I Safety Elements shown above, without using a "baseline" of other Safety Elements used by the NRB companies with higher performing safety scores, may not produce a safer working environments. Thus, the following "baseline" Level II Safety Elements, in addition to the Level I Safety Elements shown above, are also used by over 90% of the 13 NRB construction companies with higher performing safety scores.

- (1) regular communication between management and company employees on safety issues;
- (2) a formal safety program;
- (3) new employees are supplied with company required personal protective equipment free;
- (4) regular and random on-site safety inspections;
- (5) substance abuse testing program;
- (6) management support in the use of safety principles and practices;
- (7) continuous safety improvement program;
- (8) site-specific safety procedures;
- (9) safety risk management program;
- (10) job site heat stress prevention program;
- (11) a formal emergency response plan for injured employees;
- (12) regularly scheduled on-site worker safety meetings;
- (13) mandatory new employee orientation safety training program;
- (14) project specific safety training for new and specific projects; employees required to be involved in safety issue discussions;
- (16) employees required to report unsafe conditions and safety violations;
- (17) principle that taking safety risks is not part of employee's job;
- (18) formal investigation procedure for work related accidents;
- (19) procedures for making corrections for unsafe conditions at the job site;
- (20) a substance abuse awareness program.

per 100 employees per year represents a low performing safety score. A Safety Elements Questionnaire consisting of 58 Safety Elements was prepared using the established Safety Elements listed in the research literature and the additional Safety Elements listed by NRB companies with higher performing safety scores in a pilot study

DEVELOPING A SAFETY ELEMENTS MODEL

Once again, it is important to note the difference between Level I and Level II of the Safety Elements Model. Level I Safety Elements are those that have a statistically higher usage among

companies with the higher performing safety scores than companies with lower performing safety scores. Level II "baseline" Safety Elements are those that over 90% of companies with higher performing

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safety scores use in addition to the Level I Safety Elements. The following Safety Elements Model was then developed from the survey data results



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LSU STUDY'S CONCLUSION

This is the first study that looks for a link between the differences in the usage of Safety Elements of companies with higher performing safety scores and companies with lower performing safety scores. The implication for the construction industry is that workplace safety is not a random occurrence and does not happen by accident. The study demonstrates and that there are specific and fundamental steps (Safety Element Practices) that can be taken to help create a safer working environment.

It is the author's hope that this type of study can be used in like and other industries to help lower fatality and injury rates in those industries. As previous studies have shown, there is a clear link between general safety practices and the incidents of fatalities and injuries in all industries. The challenge for improving workplace safety is to specifically discover and quantify the link between more effective safety practices and the reduction of fatalities and injuries.

FOOTNOTES

- ¹ OSHA (Occupational Safety and Health Act) 2008 TCR (Total Case Rate) safety rating system
- ² Hollowell, et al. (2009)
- ³ Gittleman, et al. (2010)
- ⁴ Hollowell, et al. (2009)
- ⁵ Garrett, et al. (2009)
- ⁶ Hollowell et al. (2009)
- ⁷ Goldenhar et al. (2001)
- ⁸ Kleiner, et al. (2008)
- ⁹ Rajendran et al. (2009)
- ¹⁰ Gittlemann et al. (2009)
- ¹¹ Rajendran et al. (2009)
- ¹² OSHA, Section 5(a)(1)
- ¹³ OSHA (2008)



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of three hundred times the average daily wage or salary for a six-day worker and two hundred and sixty times the average daily wage or salary for a five-day worker, which he shall have earned in such employment during the days when so employed

(b) If the injured employee shall not have worked in such employment during substantially the whole of such year, his average annual earnings, if a six-day worker, shall consist of three hundred times the average daily wage or salary, and, if a five-day worker, two hundred and sixty times the average daily wage or salary, which an employee of the same class working substantially the whole of such immediately preceding year in the same or in similar employment in the same or a neighboring place shall have earned in such employment during the days when so employed

(c) If either of the foregoing methods of arriving at the average annual earnings of the injured employee cannot reasonably and fairly be applied, such average annual earnings shall be such sum as, having regard to the previous earnings of the injured employee in the employment in which he was working at the time of the injury, and of other employees of the same or most similar class working in the same or most similar employment in the same or neighboring locality, or other employment

of such employee, including the reasonable value of the services of the employee if engaged in self-employment, shall reasonably represent the annual earning capacity of the injured employee

(d)(1) The average weekly wages of an employee shall be one fifty-second part of his average annual earnings

(2) Notwithstanding paragraph (1), with respect to any claim based on a death or disability due to an occupational disease for which the time of injury, as determined under subsection (i) occurs —

(A) within the first year after the employee has retired the average weekly wages shall be one fifty-second part of his average annual earnings during the 52-week period preceding retirement; or

(B) more than one year after the employee has retired, the average weekly wage shall be deemed to be the national average weekly wage (as determined by the Secretary pursuant to section 6(b) [33 USC § 906(b)]) applicable at the time of the injury

² Per Diem: With respect to amounts that should be includable as "wages", Claimant's per diem should be included. See generally B&D Contracting v. Pearley 548 F.3d 338, 42 BRBS 60 (CRT) (5th Cir. 2008)

