Quarterly Report for Construction Safety Alliance: Prevention of Fatal Falls from Elevations in the Construction Industry

1. **Principle Investigator**

    - Dr. James D. McGlothlin

2. **Researchers on the Project**

    - Scott Potts
    - Ryan Lee
    - Justin Miller

3. **Progress on the Objectives this Quarter**

Three major activities occurred this quarter that helped us advance toward our objectives are:

- Evaluated literature on the economics of preventing falls from elevations among small construction companies.

Falls from Elevations

The construction industry can be a very dangerous business. The construction industry has an injury rate among the highest of all U.S. industries. Each year a substantial number of construction workers lose their lives; many others are injured. During the period from 1980 through 1995, at least 17,000 construction workers died from injuries suffered on the job (NIOSH). Construction lost more workers to traumatic injury death than any other major industrial sector during this time period. Construction has the third highest rate of death by injury: 15.2 deaths per 100,000 workers. Only mining and agriculture experience higher rates (NIOSH).

The leading causes of death among Construction workers are falls from elevations. OSHA attributes 33% of all construction worker fatalities from 1985 to 1989 to falls. In addition, OSHA claims that between January1990 to October 2001 2,741-construction accidents were from falls. Once the third leading cause of work-related deaths across all industries, falls have surpassed workplace homicide to become the second leading cause after motor vehicle crashes. In the year 2000, some 717 workers died of injuries caused by falls from ladders, scaffolds, buildings, or other elevations. That equaled almost two deaths per day on

average. Falls from elevations are the leading cause of death among construction workers. In addition, falls from/through roof' led all other causes in number of fatal events (72 or 11.9 percent of total fatal events), followed by "fall from/with structure (other than roof)" (55 or 9.1 percent). The third leading cause was "crushed/run over of non-operator by operating construction equipment" (49 or 8.1 percent) (ELCOSH).

- Developed a questionnaire on costs of the injured worker, costs of the injured worker's crew, costs of other crews, costs of equipment and material damage, and costs of the supervisory staff which included categories of: productive time lost investigating the accident, productive time lost preparing accident reports, productive time lost accompanying regulatory personnel, productive time lost addressing media personnel. This questionnaire will be administered to safety directors at construction companies that have an exemplary history for fall prevention.

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4. **Summary of the Activities this Quarter**

- Met with Carmen Shafer of Associated General Contractors of Indiana, Inc. (AGC). AGC evaluates the safety practices of their member companies and ranks them yearly. From these rankings, we were able to determine which companies warranted further investigation for our study. Also, Ms. Shafer provided construction safety materials, including prevention of falls from elevations in this industry. Preliminary findings indicate that the primary construction practice responsible for increased safety is strict enforcement of the current safety program initiated from the highest levels of management.

- Co-authored a paper entitled: ***Causes of Falls in Construction***, hosted by the International Council for Research and Innovation in Building and Construction (CIB), Cincinnati, OH, September, 2002. The CIB is a network of over 5000 experts from about 500 organizations in over 70 countries active in the research community, in industry or in education. They collaborate and exchange information in over 50 commissions covering all fields in building and construction related research, technology development and documentation. CIB W99 Working Commission on safety & health on construction sites is committed to the advancement of safety and health of construction workers.

- Attended a construction safety seminar in Indianapolis, IN, presented by AGC in February.
- Interviewed the safety officials from BMW Constructors in Indianapolis, IN about their safety program.
- Graduate student Scott Potts gave a poster presentation at the American Industrial Hygiene Conference and Exposition, on June 5th, 2002, in San

Diego, CA., on the ***Prevention of Fatal Falls from Elevations in the Construction Industry.***

- Lobbied Legislators in Washington D.C. for Construction Safety Alliance (CSA) funding in March 2002.
- Dr. McGlothlin, Scott Potts, Ryan Lee, attended a two-day workshop on human 3D CAD/CAM digital design entitled: Safework using the CATIA V5R8 SP4. The workshop was conducted by an expert from Delmia, Montreal, Canada.

5. Work Plan for the Next Quarter

- Evaluate questionnaires from selected contractors and construction companies.
- Complete a literature review on prevention of construction falls and write a summary report of findings.
- Complete the interview process of construction company safety officers.
- Develop a laboratory study protocol on the effects of age and postural stability of younger vs. older construction workers who use ladders to work at elevations.
- Attend Construction Industry Institute (CII) annual meeting, in Keystone, Colorado, and present latest findings from this study to conference attendees the Director or Deputy Director of NIOSH.