

The Development & Evaluation of New Trench Safety Equipment

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One of the most dangerous works in construction is trench work and excavation. Fatalities that range from permanent injuries to death itself happen to construction workers every single day, not having a lot of alternatives to prevent unfortunate incidents such as cave-ins and shoring failures. What this paper is proposing is a new invention that may solve this ongoing problem with trench safety. The idea is a crane-like lift attached to the back of a pick-up truck that will vertically lift people out of the trenches in a matter of seconds before shoring collapses or the trench itself caves in. This project primarily focuses on the conceptual description of this piece of machinery, along with an interview process of study that'll get insight from six safety managers and other safety personnel, with years of safety experience, from construction companies like DPR Construction, Pankow, Hensel Phelps, Granite Construction, and PCL Construction on what they think about this piece of machinery discussing positive aspects, ideas for improvement, and possibilities of future research that can benefit this product. After this process is complete, the final conceptual model and design will be developed, leading to the next stages of making this a new and revolutionary device that'll save lives.

Key Words: Invention, Trench/Excavation, Cave-Ins, Conceptual, Safety Personnel

Conclusion/Results:

After further review with the sample of safety professionals, our hypothesis leads to the conceptual final item being a successful piece of equipment, once finalized on the jobsite with proper development, testing, and training are all evaluated and completed. Now that the conceptual model has been approved and evaluated, next steps will be the process of a prototype, equipment selection, pricing, and finally will lead to a concluded product for future research and development.

Interview Questions:

- What advantages do you see in a piece of equipment like this involving trench safety, safety of the individual inside and general input?
- What disadvantages do you see in this piece of equipment in regards to safety of the individual and general input?
- Any suggestions, additions or ways to improve this device?
- Any questions about the product itself?
- If you had the opportunity to use this product on one of your jobsites, would you consider using it?

