

Dear Professional Engineers in California Government,

My name is Alexander Eitel and I am in the 6<sup>th</sup> grade at Oak Hills Elementary. It has been such a pleasure for me to participate in the 71<sup>st</sup> annual Los Angeles County Science and Engineering Fair. It has meant so much to me for winning the James E. Roberts Award for Excellence and first place in my category. I would like to say thank you, PECG, for the work you put into organizing the award, which encouraged me to pursue my dreams.

I have always been fascinated by the work engineers and architects have put into creating a new idea and placing that idea into the world. Every time I pass a building under construction, I wish I could have been the one planning out how to arrange and construct that beautiful piece of work. And after I found out about the award, I knew that I had potential ability to follow a new career path. I have wanted to become a commercial pilot since I was 4 years old. And these engineering skills will be needed for becoming a pilot, or possibly designing airplanes. This award has opened up many potential career paths I could take, and I am grateful for confidence it brought me to go on to compete in the CSEF.

The purpose of this project was to determine how engineers could build elevators to be safer in case of elevator malfunction. The goal of the project was to see if the creation of a magnetic field can enhance elevator safety. Multiple models were created; the first shaft being made out of cardboard with either a magnetic can or cardboard elevator with an overly large shaft. A second model was designed by me and built with wood by a carpenter. This model could be dropped from 7 inches. For the third model, a cardboard elevator was used to minimize weight. All successful drops were made from 14 inches. In all cases, magnets were attached to the bottom of each shaft and elevator, positive poles facing each other. In conclusion, the force of magnets can be used to slow down a free fall and prevent impact in the event of cable failure.

I would like to end this by saying thank you again for all you have done to help organize this big, online event. A special thanks to Dr. Tonia Symensma-Cohen, my school's mentor, for guiding me during the STEM competition that is still going on. I would also like to acknowledge Erick Eggel, an Electrical Engineer, for his interview and advice. Last, but not least, the biggest thank you goes to my family for supporting me along the way, especially my mother, who gave me small tips on how to make big changes.

Sincerely,

Alexander Eitel