

George J. Khouri III
Sherman Oaks, CA

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Professional Engineers in California Government
P.O. Box 712352
Los Angeles, CA 90071

Dear John Vassiliades, Caltrans, and the Professional Engineers in California Government,

I would like to sincerely express my gratitude on behalf of awarding me the prestigious James E. Roberts Award, and a check for \$500. This a huge honor to be recognized by both organizations. I hope to make a difference in the world when I am able to pursue my career as an architect and an engineer, just as Mr. Roberts had done a few decades ago.

My name is George J. Khouri III, and I am twelve years of age. I am in 6th Grade and I currently attend Sierra Canyon School in Chatsworth, CA. I love going to school every day and my goals are to learn, enjoy, go the extra mile, and always walk in with a smile on my face. My favorite school subject is Latin, and I am currently my school's Student Council President. To add, I play a lot of sports such as golf, basketball, baseball. In 4th and 5th Grade, I participated in grade – level Science Fair at my school, and I wanted to do it for another year. This year, it was optional, and I wanted to do it because of the high level of enjoyment I encountered when doing it last year. Also, this year's project standards were set to a higher level, when it came to research, to the experiments itself, or just to new concepts such as the Constants and Control.

Next, one of the things I enjoy about Science is mechanisms and processes, and how things work. Earthquakes are one of those processes that interest me. The title of my project is, "Put Your Soil To The Test." This experiment was purposed to find soils that are earthquake proof and find a way to limit damage from earthquakes. Because of the Pacific Plate colliding with the North American plate, everyday there are earthquakes in California. This makes it necessary to have the right conditions for homes and buildings. My hypothesis was that different types of soil can affect the condition of a house after an earthquake, and this was supported.

I tested my hypothesis using clay, gravel, sand, and garden soil (control) as my independent variable. I made twenty graham cracker houses using a glue gun and glued a rectangular plastic bin, used to hold the soil, to the top of a shaking table. Then, I poured clay into the bin, leveled it, and then gently forced the house into the clay. The shaking table, powered by an electric drill, was turned to a medium speed for twenty seconds. I accelerated the pace for the last ten seconds, and after thirty seconds of shaking, I examined the graham cracker house and recorded the results. Five trials were run for each soil. With clay and gravel, none of the houses broke or cracked; however, some breaks and chips were found on

some walls of the sand and garden soil trials. Furthermore, on all trials, the houses rocked and tilted, but only some of them turned over.

In this experiment, I found that the right soil is vital to limiting damage and can make a difference in a house's condition. This experiment is one step closer to finding earthquake – proof soils to build foundations and houses on. I learned in my research that the closer a town is to a fault line, the more it needs to be prepared. This is one step closer to doing so.

To echo what I said in the beginning of this letter: Thank you so much for presenting me with this award.

Sincerely,



George J. Khouri III.