



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Blaine S. Anderson	Project Number J0301
Project Title Earthquakes vs. Skyscrapers	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals In my experiment I am trying to figure out what style building is best for standing up to earthquakes. Will it be a building like todays skyscrapers, one built with shock absorbers, or one with a wider base?</p> <p>Methods/Materials During my experiment I used LEGO's to construct my buildings. I designed a shake table using two plastic cutting boards, two large rubberbands and four 1" diameter balls. I measured the magnitude of my earthquakes by using a Google App called "Science Journal".</p> <p>Results During my experiment I tested four different structures with the same height but different base sizes. My widest base structure sustained the largest magnitude earthquake.</p> <p>Conclusions/Discussion During my experiment I determined that the wider base the more stable the structure. I found that each time I increased the base width and depth the structure could withstand a higher magnitude earthquake. My largest base building measured 3-1/8" square x 12" high and withstood a 14.7 earthquake, while my smallest building measuring 1-7/8" square x 12" high only withstood a 8.8 earthquake. When I tested the shock absorbers I was surprised that the results were very similar to the narrowest structure. Of course, I was using LEGO's and based on my research real shock absorbers would work better than todays narrow skyscrapers built without shock absorbers.</p>	
Summary Statement I was able to determine which base style for a skyscraper would best hold up to an earthquake.	
Help Received I had assistance with creating my shake table by my parents, I built my structures and performed my experiments on my own.	