



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

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| <b>Name(s)</b><br><b>Blaine S. Anderson</b>   | <b>Project Number</b><br><br><div align="right">38823</div> |
| <b>Project Title</b><br><b>Earthquakes vs. Skyscrapers</b>  |   |
| <p align="center"><b>Abstract</b></p> <p><b>Objectives/Goals</b><br/>         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><b>Methods/Materials</b><br/>         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><b>Results</b><br/>         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><b>Conclusions/Discussion</b><br/>         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> |   |
| <b>Summary Statement</b><br>I was able to determine which base style for a skyscraper would best hold up to an earthquake.  |   |
| <b>Help Received</b><br>I had assistance with creating my shake table by my parents, I built my structures and performed my experiments on my own.  |   |